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DIAGNOSIS AND TREATMENT OF GOUT AND GOUTY ARTHRITIS

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Contrary to general belief, gout is fairly common in the United States; but it is frequently unrecognized. Most patients with gouty arthritis have their disease for several years and endure a number of attacks before a correct diagnosis is made.¹ This is unfortunate because of the various articular diseases, acute gouty arthritis is one of the most responsive to treatment. Hence the most important point in the treatment of gout and gouty arthritis is its recognition. The diagnosis of gout must therefore be considered in some detail.²

Gout is a disease of unknown etiology characterized chiefly by (1) arthritis, which is at first acute and recurrent, each attack being followed by complete symptomatic remission, but which later tends to become chronic; (2) supposed abnormality in the renal excretion of uric acid, the end product of purine metabolism; (3) hyperuricemia, which is usually transient at first but later generally becomes chronic; (4) eventual deposits of sodium urate crystals in articular, periarticular and subcutaneous tissues, sometimes also in kidneys and urinary tract; (5) frequent terminal vascular lesions in the kidneys, sometimes also in the heart and brain.

Recent opinions³ are that gout results from (1) some endocrine deficiency, (2) abnormal renal insensitivity to urates, (3) selective renal insufficiency for urates alone, (4) a "storm in the vegetative nervous system," a functional disturbance involving the renal or the thoracic sympathetic nerves, or (5) an allergic reaction to proteins, not necessarily to exogenous proteins derived from foods rich in purine (fig. 1), but also to proteins from certain nonpurine foods as well as to endogenous proteins, tissue substances formed after injuries, vasomotor disturbances or operations.

Gout and gouty arthritis are not synonymous; the latter is merely the dominant symptom of gout. The arthritis and the other principal features of gout (hyperuricemia, tophi, late renal and cardiovascular

complications) are only the outward signs of some underlying chemical or metabolic abnormality of which little is known. This disturbance, the gout per se or the constitutional gouty state, is in symptomless operation for some time before acute arthritis first appears, and it is this fundamental abnormality which under suitable provocation gives rise to the subsequent appearance of the classic symptoms.

THE PATTERN OF GOUTY ARTHRITIS; ITS RELATION TO OTHER FEATURES

Gout can best be studied by noting the relationship of its other features to the pattern of gouty arthritis (fig. 2). The larval stage of gout is that period of the disease prior to the first attack of gouty arthritis. During this stage of gout the body is being unobtrusively conditioned for subsequent events, but little is known about the chemical or histologic abnormalities which are then transpiring. This larval or prearthritic stage of gout is generally, but not always, symptomless; sometimes it is accompanied by transient but definite hyperuricemia of varying intensity, and in a few cases it is characterized by the appearance of subcutaneous tophi or of renal urate stones or gravel, tophi of the urinary tract, which may be discovered even before the first articular attack.

The first attack of acute gouty arthritis sometimes occurs in a young person but usually affects persons, generally men, who are more than 35 or 40 years of age; it appears suddenly, lasts from three to ten or more days and then disappears completely. In about 60 per cent of the cases¹ it affects a great toe (podagra), but it may affect an instep, ankle, knee or other peripheral joint, and the great toes may long be unaffected. Therefore a diagnosis of gout must not be discarded just because podagra is absent. The second attack usually occurs after a year or so and may affect the joint previously involved or a new one; it may or may not be more severe and last longer than the first attack, and it also disappears completely. Sooner or later the tempo and severity of the disease generally increase; attacks may come semiannually (often in spring and fall) or more frequently. Early attacks are generally monarticular and afebrile; later attacks are often polyarticular and may be febrile (temperature of 102 F. or more). Although certain roentgenologic changes may appear and remain after several acute attacks, in the first stage of the disease joints recover full symptomless function.

From three to forty (average twelve) years after the first attack the second great stage of articular gout occurs, that of chronic gouty arthritis, when the joints no longer recover completely but some stiffness, pain or deformity remains; in this stage acute exacerbations are superimposed on the residual chronic gouty arthritis.

From the Division of Medicine, the Mayo Clinic.

1. Hench, P. S.; Vanzant, Frances R., and Nomland, Ruben: Basis for the Early Differential Diagnosis of Gout: A Clinical Comparison of 100 Cases Each of Gout, Rheumatic Fever and Infectious Arthritis. *Tr. A. Am. Physicians* 43: 217-229, 1928.

2. Hench, P. S.: The Diagnosis of Gout and Gouty Arthritis. *J. Lab. & Clin. Med.* 22: 48-55 (Oct.) 1936; Chronic Arthritis; ³ A Clinic on Some Diseases of the Joints; ⁴ Comments on the Diagnosis and Management of Gout in Certain Parts of the United States; ⁵ Hench, Vanzant and Nomland; ⁶ Hench and Darnall.

3. Hench, P. S.: Chronic Arthritis: Chronic Infectious Arthritis, Chronic Senescent Arthritis, Gout, in *Modern Medical Therapy in General Practice*, Baltimore, Williams & Wilkins Company, 1940, pp. 3359-3384.

Thus the pattern of classic gouty arthritis can be divided into two great stages comprising four phases (fig. 2). Stage 1 is that of acute recurrent gouty arthritis; stage 2 is that of chronic gouty arthritis. Phase 1 of stage 1 is that of the early, less severe and generally monarticular attacks. In this phase hyperuricemia is often present but is frequently absent not only between but during acute attacks. Subcutaneous tophi and areas of erosion in roentgenograms which are indicative of osseous tophi are almost always absent in this phase and should not be expected. Phase 2 comprises the later, generally more severe and longer attacks, which may be febrile, are often polyarticular and are associated with a more definite and persistent hyperuricemia but are still followed by complete symptomatic remissions. In this phase subcutaneous and osseous tophi are more frequent but still present in only about 25 to 35 per cent of the cases.



Fig. 1.—At the sign of a split shoe suspect gout. Excesses of alcoholies and purines are not the cause of gout, but they may cause acute gouty arthritis, the dominant symptom of gout.

In phase 3, which is the first phase of stage 2, early chronic gouty arthritis with acute attacks and incomplete remissions appears. In this phase hyperuricemia is almost always present in untreated patients but may be made to disappear, at least temporarily, under proper treatment. In this phase subcutaneous tophi on the ears, elbows and around joints are almost always present and may be multiple and ulcerating, and osseous tophi of the hands or feet, but rarely elsewhere, are commonly present. Phase 4, the second phase of stage 2, is the final stage of the disease, characterized by a relatively painless chronic gouty arthritis; hyperuricemia and multiple tophi almost always are present.

When active gout develops early in life it may reach stage 2 in middle life, but when the first symptoms of gout develop in middle or late life it frequently does not progress to stage 2 and the patient may die of some unrelated condition, perhaps at normal expectancy.

Gouty nephritis (nephrosclerosis with urate deposits and foreign body reactions in renal parenchyma) and renal colic from urate gravel or stones (urinary tophi) rarely manifest themselves in phase 1, occasionally appear in phase 2, and are not uncommon in phases 3 and 4; they are present in about 10 to 20 per cent of the total cases of gout. Aside from these renal lesions the only other valid examples of visceral gout are found in the cardiovascular system; degenerative vascular disease may complicate late gout and cause death by coronary or cerebral vascular accidents. These vascular lesions are nonspecific and do not contain urates, but intracardiac tophi have been seen,⁴ although they are rare. For reasons that have been given elsewhere³ I have rejected the conception of irregular as opposed to classic gout.

DIAGNOSIS OF GOUT AND GOUTY ARTHRITIS

When a patient has had several attacks and has had the disease long enough for some of the so-called diagnostic features, podagra, hyperuricemia, subcutaneous and osseous tophi, to develop, the diagnosis should not be difficult even for physicians who are not particularly "gout conscious." Many absolutely typical cases, however, are not being diagnosed correctly by physicians who, never thinking of gout, fail to discover the hyperuricemia and tophi which are almost crying for recognition. Unfortunately for the early diagnosis of gout these "diagnostic features" do not appear in many, perhaps in most, cases until rather late in the disease. Indeed in some cases some of them never appear. Of any physician's total cases of gout in all stages subcutaneous tophi will be found in only about 50 per cent, areas of erosion as demonstrated in the roentgenogram in only about 30 per cent, and hyperuricemia in about 75 per cent.¹ Podagra will be found to be present at some time or other in about 80 per cent, but not necessarily in the first attack.

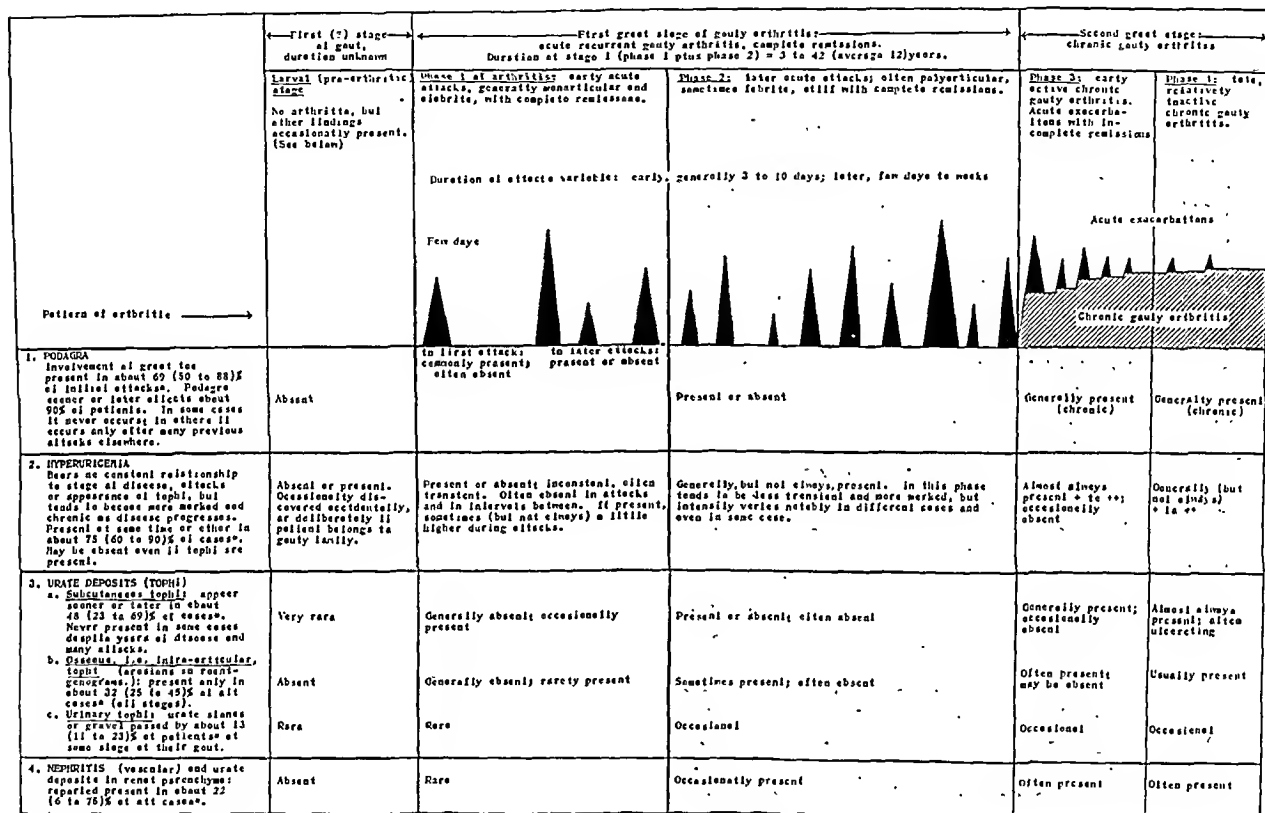
Physicians should not be content to postpone the diagnosis (and treatment) of gout until late in the disease when these "classic features" have become glaringly obvious. Without these features how can an early diagnosis be made? It can be made (1) during the first or any subsequent attack on the basis of certain features which are highly characteristic of the individual attacks or (2) after the second or later attack on the basis of the obviously developing characteristic pattern of gouty arthritis (fig. 2). This clinical pattern, which is made by acute recurring attacks and complete remissions, is so distinctive of gout as to be almost pathognomonic; it permits a diagnosis of presumptive or pretopaceous gout (in contrast to the diagnosis of tophaceous gout) with no little assurance, since it is not exactly mimicked by any of the other articular diseases which have recurrences and complete articular remissions; for example, rheumatic fever and intermittent hydrarthrosis.

Diagnostic Features of Individual Attacks.—When the patient is seen in the first or second attack with only a fragment of the clinical pattern in view, diagnosis is based on certain features, no one of which is diagnostic but a combination of which is almost pathognomonic for gout. Attacks which sometimes appear "spontaneously" commonly occur after some characteristic provocative, such as minor trauma or dietary indiscretion and less commonly after infection,

4. Hench, P. S., and Darnall, C. M.: A Clinic on Acute, Old-Fashioned Gout, with Special Reference to Its Inciting Factors, *M. Clin. North America* 16: 1371-1393 (May) 1933.

surgical procedures, certain medicines and psychic upsets. Unaware of their significance, patients rarely mention these provocatives; they must be sought.⁶ Attacks sometimes begin in the early morning hours but are usually noted when, on awakening, the patient puts the foot to the floor. In gout there is a gradient of articular vulnerability whereby the peripheral joints of the feet, ankles, hands and wrists are affected most often, the knees and elbows less often, the shoulders and hips rarely, and the spine very rarely if ever. Olecranon bursitis and achilles tendinitis often occur. When a great toe is affected, maximal tenderness is usually on its medial aspect, not on its top or bottom as in atrophic (chronic infectious, rheumatoid) arthritis. A gouty foot is more often warm and red or bluish

("exposition gout") or from long motoring (pedaling), or from excesses in golf or amateur laboring, for example, lawn mowing.⁴ Post-traumatic gouty arthritis can be differentiated from true traumatic arthritis thus: True traumatic arthritis begins immediately after trauma; the inflammatory reaction is proportional to the severity of trauma, is confined to the traumatized region and is not relieved by colchicine; the characteristics of gout (history, hyperuricemia, tophi) are absent. In post-traumatic gouty arthritis the inflammatory reaction is often delayed some hours after trauma, is out of proportion to the amount of trauma experienced, often progresses to other nontraumatized joints and is relieved by colchicine; some of the characteristic features of gout may also be present.



*Summarized from recent literature

Fig. 2.—The basic pattern of gout and gouty arthritis (untreated).

red than clammy, cold and bluish white as in atrophic arthritis. Shiny skin, some edema and later desquamation of the skin often are notable. Attacks of gouty arthritis usually develop more rapidly than attacks of any other acute arthritis; maximal disability may appear within twelve to thirty-six hours. Pain may be moderate but is usually marked and is often excruciating; it may or may not be worse at night. Recovery may be slow but is generally (spontaneously) rapid, occurring within a few days, and in the first stage of the disease it is complete.

Diagnostic Features Summarized Axiomatically.—My diagnostic criteria of gout and gouty arthritis are expressed in twenty-one points, as follows:

1. Suspect gout when acute arthritis suddenly develops after relatively trivial trauma, such as a walk of unaccustomed length, that from excessive sight seeing

2. Suspect gout when acute arthritis develops after dietary excesses of holidays, birthdays, lodge night, conventions and the like.⁴

3. Suspect gout when arthritis develops acutely within the first week after any surgical procedure; acute postoperative arthritis is usually gouty.⁶

4. Suspect as gout an acute arthritis appearing after the trauma, exposure and dietary excesses (venison, meat, alcohol) of a fishing or hunting trip⁴ (fig. 1).

5. Suspect as gouty an acute arthritis which recurs in the spring or fall. Attacks, however, may occur any time.

6. Suspect gout when acute arthritis begins between 2 and 7 a. m., but gouty arthritis may occur at any hour.

7. Suspect gout when acute arthritis occurs while a patient is being given liver extract for anemia, mersalyl

6. Hench, P. S.: A Clinic on Some Diseases of Joints: II. Acute Postoperative Arthritis: Its Identification; III. Acute Postoperative Gout: Its Treatment and Prevention, *M. Clin. North America* 10: 551-583 (Sept.) 1935.

(salyrgan) for dropsy,⁷ ergotamine tartrate (gynergen) for migraine, a ketogenic regimen, thiamine hydrochloride (vitamin B₁),⁸ dehydrocholic acid (decholin)⁹ or insulin (rarely).¹⁰ These are the medicinal provocatives of gout.

8. Suspect as gouty the acute arthritis of patients with leukemia or polycythemia or other dyscrasias involving destruction of blood and liberation of nucleoproteins.

9. Be cautious about making a diagnosis of gout in females; gout rarely affects females but when it does so it affects them in the classic manner. About 95 to 98 per cent of cases of provable gout occur among males.

10. Suspect as gouty any acute arthritis which suddenly and spontaneously affects a man more than 40 years of age; among such persons gouty arthritis is the commonest type of acute arthritis, but it may affect young persons of either sex.

11. Suspect gout when acute arthritis comes on and produces maximal disability with dramatic speed, within a few minutes or hours.

12. Suspect gout when the pain of an acute, but short lived, arthritis is unusually severe; "the worst ever."

13. Suspect gout when a great toe is acutely, not chronically, affected, and especially when the maximal tenderness is on its mesial aspect. Podagra, however, may occur late or never in a given case.

14. Suspect gout when an acutely affected foot is warm and red or bluish red rather than cold and bluish white as in atrophic arthritis and when edema and later desquamation of the skin are present.

15. When a patient presents himself, wearing a split shoe or a cut-out shoe, think of gout (fig. 1). Feet affected with atrophic arthritis usually are involved bilaterally and the swelling therein develops so gradually that the patient buys larger shoes. But in acute gouty arthritis the swelling progresses and regresses so rapidly that the patient handles the temporary articular emergency (so often unilateral) by splitting an old shoe.

16. In particular, suspect as gout any single attack of acute arthritis of short duration (from one to three weeks) which, especially considering its severity, disappears rather rapidly and completely. So complete are the remissions that "a person subject to gout has won the race at the Olympic games during the interval of the disease."¹¹

17. Consider any patient with chronic arthritis who has previously had (generally several) recurrent attacks of acute arthritis with complete remissions, to have gout until proved otherwise (fig. 2). Search for hyperuricemia and subcutaneous or osseous tophi, but if they are absent do not hesitate to make a diagnosis of "presumptive gout" at least to the extent of instituting a therapeutic test.

18. Since olecranon bursitis is several times commoner in gout than in any other disease, suspect gout in patients who have it or give a sought for history thereof.

7. Price, N. L.: Gout Following Salyrgan Diuresis, *Lancet* 2:22-23 (Jan. 7) 1939. Hench.²

8. Vorhaus, M. G., and Kramer, M. L.: Studies on Thiamine Chloride in Gout, *Tr. Am. Therap. Soc.* 38:109-115, 1938; *Acta rheumatol.* 10:8-11 (Dec.) 1938.

9. Bowers, J. M.: Gout, *Northwest Med.* 37:284-287 (Sept.) 1938.

10. Rabinowitch, I. M.: An Unusual Case of Diabetes and Gout, *Canad. M. A. J.* 19:682-686 (Nov.) 1928.

11. Aretaeus: The Extant Works of Aretaeus, the Cappadocian (translated by Francis Adams), London, the Sydenham Society, 1856, p. 365; Aretaeus, the Cappadocian, Edited by Herman Boerhaave, ed. 4, Leyden, 1735, p. 67 B.

19. When the shoulders, hips or spine are acutely or chronically affected, make a diagnosis of gout with great caution and only on the basis of unmistakable signs of gout and of gouty arthritis elsewhere. Such is the gradient of articular vulnerability in this disease that gouty arthritis affects the spine rarely if ever, the hips and shoulders rarely and generally only after previous attacks in more peripheral joints. Gout does not tend to produce a rheumatism of the torso.

20. Suspect gout in cases of acute or chronic arthritis in which there is a history or signs of renal colic (urate stones or gravel) or nephritis. Renal stones and nephritis affect about 10 per cent or more of gouty patients but rarely affect patients with atrophic, or hypertrophic (senescent, degenerative, osteo-) arthritis and then only coincidentally. It must be remembered that urate stones cast no roentgenographic shadows.

21. When periarticular or para-articular ulcers or fistulas are present, rule out gout. Ulcerating gouty tophi are now more common than ulcerating tuberculous fistulas of the joints.

Of all these points a characteristic history of the articular attacks is the most important for early and accurate diagnosis. When such a history is absent, therapeutic and provocative tests have indicated, in my experience, that gout is rarely if ever present, regardless of the presence of other features suggesting gout. Provocative tests performed by giving excessive quantities of purine, fats or both are only occasionally helpful in diagnosis. Much more reliable are therapeutic tests, for which colchicine in full doses is used alone or with other antigout measures.

TREATMENT

Prophylaxis.—Children and other relatives of gouty patients sometimes possess symptomless hyperuricemia.¹² Such hereditary candidates for gout should live moderately, avoid occupations permitting gastronomic overindulgence and avoid or undertake cautiously the various provocatives of acute gout.

Treatment of Acute Gouty Arthritis.—Patients who experience recognizable nonarticular prodromes (some note nausea, dyspepsia, polyuria or euphoria and a rayenous appetite) or warning articular twinges can sometimes abort the impending attack by taking a brisk cathartic and a few doses of colchicine (each dose $\frac{1}{400}$ grain, or 0.65 mg., every two to three hours). It is better to institute such a regimen needlessly for a false alarm than to permit an attack to become established. When the latter does happen, treatment includes the following measures:

Cathartic: A brisk cathartic, magnesium sulfate from $\frac{1}{2}$ to 1 ounce (15 to 30 Gm.), solution of magnesium citrate from 6 to 12 ounces (180 to 360 cc.) or sodium phosphate from 4 to 8 Gm., supposedly will promptly evacuate provocative toxins; its use is empiric but apparently helpful.

Rest: Affected parts should be rested completely, preferably in bed, and protected from bedclothes by a light wooden or metal cradle. Weight bearing and activity should be avoided until pain and tenderness disappear; otherwise an exacerbation may result.

Heat or Cold: Simple hot water compresses reapplied every one or two hours are generally effective and often

12. Folin, Otto, and Denis, Willy: The Diagnostic Value of Uric Acid Determination in Blood, *Arch. Int. Med.* 16:33-37 (July) 1915. Jacobson, B. M.: The Uric Acid in the Serum of Gouty and of Non-Gouty Individuals: Its Determination by Folin's Recent Method and Its Significance in the Diagnosis of Gout, *Ann. Int. Med.* 11:1277-1295 (Jan.) 1938. Talbot, J. H.: Serum Urate in Relatives of Gouty Patients, *J. Clin. Investigation* 19:645-648 (July) 1940.

preferable to dry heat. Compresses of magnesium sulfate or lead lotion are prescribed by some physicians, lotions of aconite, belladonna and chloroform by others. Sometimes cold compresses give the most relief.

Colchicine: Colchicine tablets, each $\frac{1}{120}$ or $\frac{1}{100}$ grain (0.53 or 0.65 mg.), should be given: two tablets initially and one tablet every two or three hours (in severe cases even during the night) until pain is relieved or some gastrointestinal disturbance, such as nausea or diarrhea, appears. Having once learned his toxic or "diarrhea dose," a patient in subsequent attacks may (or may not) be able to obtain a satisfactory effect without the toxic effect by taking one or two less tablets in a course. Colchicine is more consistently effective than the wine or tincture of colchicum (dose from 15 to 30 minims or 1 to 2 cc. every two to four hours), which sometimes deteriorates. Gouty patients should carry a few colchicine tablets for prompt use when necessary.

Narcotics: Until pain is controlled by colchicine and compresses, a dose of two of codeine (from $\frac{1}{2}$ to 1 grain, or 0.032 to 0.065 Gm.) or morphine sulfate (from $\frac{1}{8}$ to $\frac{1}{4}$ grain, or 0.01 to 0.016 Gm.) may be required.

Cinchophen and Substitutes for Cinchophen: Attacks are better controlled when cinchophen or a substitute for it is used to supplement other measures, especially if hyperuricemia is present. Cinchophen should be given during attacks thus: $7\frac{1}{2}$ grains (0.5 Gm.) three or four times daily with the precautions noted later in this paper (alkali, carbohydrates, extra fluid).

Some physicians prefer to prescribe one of the following substitutes daily during the attack: neocinchophen from 5 to $7\frac{1}{2}$ grains (0.3 to 0.5 Gm.) three times a day; sodium salicylate 20 grains (1.3 Gm.) four times a day or acetylsalicylic acid 20 grains (1.3 Gm.) three or four times a day. I agree with those who have noted that in some cases these substitutes are not completely effective and inferior to cinchophen;¹³ but cinchophen or a substitute for cinchophen used without colchicine is also inadequate in some cases.¹⁴

Diet: The diet currently approved for acute gouty arthritis is free of purines and low in fats (the latter inhibits urate excretion), rich in carbohydrates, which increase urate excretion, and rich in purine-free proteins (milk, eggs, cheese). This diet minimizes the formation of exogenous urates and fosters elimination of endogenous urates. Its rationale may be questioned when it is realized that many patients during attacks excrete urates normally or even excessively. Future work must determine how necessary purine restrictions are during attacks, but then of all times patients are receptive to instruction in those dietary restrictions which the interval treatment of gout seems to require. Complete abstinence from alcohol is advisable.

Interval Treatment of Symptomless Gout and Control of Hyperuricemia.—Gout is not cured when the attack is over. Gout is a chronic disease for which treatment must be continued indefinitely in an attempt to prevent or postpone return of symptoms. Contrary to the belief of a few physicians that no regimen materially alters the "relentless progress of gout," most physicians believe that, by adhering faithfully to the interval treatment, the majority of patients can sharply modify the course of their disease, reduce the number and severity of attacks, prevent or reduce the likelihood of chronic gouty arthritis and avoid or postpone the late and some-

times fatal renal and cardiovascular complications. The faithful and successful adherence to such a regimen, however, requires, most of all, a high degree of self-discipline on the patient's part.

Purine Content of Certain Foods*

List 1. Foods which contain very large amounts (150 to 1,000 mg.) of purine bodies in 100 Gm.

Sweetbreads.....	825 mg.	Kidneys (beef).....	200 mg.
Anchovies.....	363 mg.	Brains.....	195 mg.
Sardines (in oil)...	295 mg.	Meat extracts.....	160-400 mg.
Liver (calf, beef)...	233 mg.	Gravies.....	Variable

List 2. Foods which contain a large amount (75 to 150 mg.) of purine bodies in 100 Gm.

Bacon, beef, calf tongue, carp, chicken soup, codfish, duck, goose, halibut, lentils, liver sausage, meat soups, partridge, perch, pheasant, pigeon, pike, plaice, pork, quail, rabbit, sheep, shellfish, squab, trout, turkey, veal, venison

List 3. Foods which contain a moderate amount (up to 75 mg.) of purine bodies in 100 Gm.

Asparagus, bluefish, bouillon, cauliflower, chicken, crab, eel, flounder, haddock, ham, herring, kidney beans, lima beans, lobster, mushrooms, mutton, navy beans, oatmeal, oysters, peas, salmon, shad, spinach, tripe, tuna fish, whitefish

Also whole grain bread and breadstuffs: graham bread, graham crackers, oatmeal crackers, rye bread, Rye Krisp, whole wheat bread, Zed

Also whole grain cereals: Bemax, bran, bran flakes, cracked wheat, Embo, graham porridge, Grape-nuts, Krumbles, malt breakfast food, Pep Bran Flakes, Pettijohns, Puffed Wheat, Ralston's, Sims, Shredded Wheat, Wheaties, Wheat oats, Wheatworth, Whole Wheat Krumbles

List 4. Foods which contain an insignificant amount of purine or no purine:

1. Beverages	7. Cheese of all kinds †
Carbonated	8. Eggs
Chocolate	9. Fats of all kinds (but eat in moderation)†
Cocoa	10. Fruits of all kinds
Coffee	11. Gelatin
Fruit juices	12. Milk
Postum	Buttermilk
Tea	Condensed milk
2. Butter †	Malted milk
3. Breads and breadstuffs (except whole grain under list 3)	13. Nuts of all kinds †
Benson's water crackers	Peanut butter †
Butter thins	14. Pies (except mince-meat)†
Corn bread	15. Shad roe
Corn sticks	16. Sugar and sweets
French bread	17. Vegetables
Gluten bread	Artichokes
Holland rusk	Beets
Soda crackers	Beet greens
Uneda biscuit	Broccoli
Winter rolls	Brussels sprouts
White bread	Cabbage
Zwieback	Carrots
4. Caviar	Celery
5. Cereals (except whole grain under list 3)	Corn
Breakfast brownies	Cucumber
Cornflakes	Dandelion greens
Cream of wheat	Eggplant
Farina	Endive
Grits	Kohlrabi
Hot toasties	Lettuces
Puffed rice	Okra
Rice flakes	Parasprouts
Rice krispies	Potato
White cornmeal	Sweet
Yellow cornmeal	White
6. Miscellaneous cereal products	Pumpkin
Arrowroot	Rutabagas
Hominy	Sauerkraut
Macaroni	String beans
Noodles	Summer squash
Sago	Swiss chard
Spaghetti	Tomato
Tapoca	Turnips
Vermicelli	18. Vegetable and cream soups (to be made with allowed vegetables and without meat stock)
	19. Vitamin concentrates
	Cod liver oil
	Halibut oil
	Yeast

* To calculate the purines or "purine bodies" in a given food the purine nitrogen is multiplied by 3; example, 200 mg. of purine nitrogen equals 600 mg. of purine bodies.

† These foods are high in fat.

Hyperuricemia and urate deposits are the result, not the cause, of gout and they bear an uncertain, perhaps even no, relationship to the acute articular attacks, but they do bear an important causal relationship to the production of chronic gouty arthritis, which represents

13. Kersley.¹³ Lockie.¹⁴

14. Lockie, L. M.: A Discussion of a Therapeutic Test and Provocative Test in Gouty Arthritis, *Ann. Int. Med.* 13: 755-760 (Nov.) 1939.

a foreign body reaction to the urate deposits. Hence it is necessary to combat chronic hyperuricemia (1) by dietary restrictions and (2) by the intermittent use of urate eliminants; that is, urate diuretics.

Dietary Restrictions: Each patient must be treated individually as the stage and severity of his disease and his temperament dictate. In general the diet should be free of purines on two, not necessarily consecutive, days and low in purines five days a week. Normal diets contain from 600 to 1,000 mg. of purines (that is, purine bodies) daily; a low purine diet contains from 100 to 150 mg. and can be attained roughly by allowing one food from list 2 in the accompanying table one day a week and one from list 3 four days a week, besides whatever foods are desired from list 4. Obesity should be avoided, but normal weight should be maintained. Two days each week the selections should be only from list 4 (foods free of purines). The foods in list 1 (foods rich in purines) should always be avoided entirely. It is customary to advise the avoidance also of spices, condiments and rich or indigestible foods and sauces in an attempt to prevent those gastrointestinal or particularly hepatic disturbances which may somehow initiate acute attacks. The low purine and purine-free diets just outlined may be deficient in protein, iron and vitamin B₁; generally the diet must be reinforced by administration of iron (ferrous sulfate 5 grains, or 0.3 Gm., daily) and an approved preparation of the vitamin B complex (at least 200 international units of thiamine hydrochloride and 200 Sherman-Bourquin units of riboflavin daily).

Coffee and tea are permissible, being methylated purines which do not form uric acid. Some veterans of gout insist that they can consistently tolerate certain alcoholic drinks but not others; since they cannot agree on which are harmless, the gouty novice should avoid all alcohol unless prepared to pay the price of personal experimentation.

It must be emphasized that gout may affect vegetarians and teetotalers. Purines and alcohol do not cause the disease gout any more than sugar causes diabetes. Once a person has diabetes (insulin deficiency) excessive intake of sugar may provoke symptoms. So, too, once a man has gout, and only then, will excessive intake of alcohol and purines provoke the quiescent gout into symptomatic activity and cause acute gouty arthritis (fig. 1), but so also high fat and ketogenic diets may provoke acute articular attacks.

Physicians who espouse the allergic theory consider the avoidance of purines less important than the avoidance of foods to which, regardless of their purine content, patients may be individually allergic as suggested by cutaneous tests or by their apparent provocative effect. For example, asparagus, not especially rich in purines, is said to provoke attacks in some persons. The rationale of such special restrictions is not yet clear, but physicians should cater to established idiosyncrasies.

Urate Eliminants (urate diuretics): For the many patients who cannot control symptoms and hyperuricemia by diet alone, the additional use of some urate eliminant is required: acetylsalicylic acid, sodium salicylate, sodium salicylate "augmented" by aminoacetic acid, neocinchophen or cinchophen. I believe that cinchophen is the most effective and that there is no exact substitute for it, but because of its occasional toxicity a substitute should be tried first. Salicylates augment urate excretion but generally have been considered inferior to cinchophen and ineffective except as mild analgesics

unless large irritating doses are used. But Jennings¹⁵ recently concluded that salicylates are as effective as cinchophen in controlling pain and hyperuricemia. He prescribed sodium salicylate 80 grains (5.3 Gm.) daily and sodium bicarbonate from 120 to 150 grains (8 to 10 Gm.) daily for three or four consecutive days each week to be continued indefinitely as interval therapy. Others prescribe acetylsalicylic acid from 60 to 80 grains (4 to 5.3 Gm.) daily, four consecutive days each week. Another scheme, based on Quick's report¹⁶ that aminoacetic acid (glycine) augments the uricosuric action of salicylates is this: sodium salicylate 60 grains (4 Gm.) and aminoacetic acid 150 grains (10 Gm.) daily three consecutive days a week.

If symptoms of the disease and the hyperuricemia are not satisfactorily controlled by diets and these drugs, I believe that the intermittent use of cinchophen is justified except for those patients who have hepatic dysfunction or an idiosyncrasy to cinchophen or who are unwilling to accept the slight risk. At the Mayo Clinic we use the plan of Graham:¹⁷ cinchophen 7½ grains (0.5 Gm.) three times daily for three consecutive days each week. The drug is continued thus indefinitely, but occasionally the dose is reduced or the drug withheld temporarily as control of gouty symptoms and of hyperuricemia permit. If the blood uric acid becomes normal or nearly so, the drug may be temporarily omitted or given for a while only one or two days a week in the usual doses or in smaller doses three days a week. Some physicians "go half way" in the matter of cinchophen and regard the use of neocinchophen from 5 to 7½ grains (0.3 to 0.5 Gm.) three times a day, two or three days every week or two, as a satisfactory compromise, but no final opinion can be given as to whether this is safer than cinchophen.

"Precautions" Against Cinchophen Toxicity: Whenever cinchophen is given, certain precautions must be taken: the ingestion of about 2 liters of fluid daily and of liberal amounts of carbohydrates. Cinchophen carries a definite risk, which some physicians never condone but which most students of gout¹⁸ consider justifiable if gout is uncontrolled otherwise. Serious toxic reactions from cinchophen are, after all, rather rare, especially in gouty patients. The chances of serious or fatal intoxication from cinchophen in gouty patients is believed to be only a small fraction of 1 per cent. This risk must be contrasted with that of the disease itself: in from 10 to 20 or more per cent of cases gouty nephritis develops which is sometimes fatal,¹⁹ and the incidence of renal colics from urate gravel and of cardiovascular lesions is notable. Since the disease thus carries a much greater risk than its treatment by cinchophen, it seems justifiable to assume the small risk of the latter, when necessary, to try if possible to prevent the articular, renal and vascular consequences of gout. Patients should be told of the risk of toxic reactions

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19. Schmitzer, M. A., and Richter, A. B.: Nephritis in Gout, *Am. J. M. Sc.* **192**: 241-252 (Aug.) 1936. Kinell, Jack, and Haden, R. L.: Gout: A Review of Sixty-Two Cases, *M. Clin. North America* **24**: 429-441 (March) 1940. Bröchner-Mortensen, Knud: Diagnosis of Gout, *Acta med. Scandinav.* **99**: 538-562, 1939. Hench, Vanzant and Nomland.¹

from cinchophen and instructed to report such unusual symptoms as anorexia, dyspepsia, nausea, loss of weight, pruritus or jaundice, to stop taking the drug at once, and to report for special therapy (carbohydrates intravenously, high carbohydrate diet, vitamin supplements and so on).

Alkalis: During the administration of urate diuretics, patients should take enough alkali to insure constant urinary alkalinity in order to prevent renal colic from the precipitation of urate gravel or stones in acid urine. They can learn to test the urine with litmus paper to determine the amount of alkali individually required; this varies somewhat, but potassium citrate from 15 to 30 grains (1 to 2 Gm.) three times a day or sodium bicarbonate from 30 to 60 grains (2 to 4 Gm.) three times a day generally suffices. These amounts of sodium bicarbonate occasionally produce gastrointestinal disturbances which may be erroneously ascribed to cinchophen; if these occur, an alternate method of urinary alkalization is necessary.

Other Measures: Contrary to general opinion, a few physicians consider colchicine to be a preventive of acute attacks and prescribe $\frac{1}{120}$ grain (0.53 mg.) three times a day for two or three days each week or in one week of each month. With similar intent others²⁰ gave from 330 to 3,300 international units of vitamin B₁ (thiamine hydrochloride) daily continuously even though initial doses commonly provoked acute attacks. The value of such therapy is not established. Of more certain value is the constant avoidance of the several known provocatives of gout, not only the gastronomic but also the traumatic, medicinal, psychic, surgical and infectious provocatives. Acute postoperative gouty arthritis generally can be prevented by the use of a high carbohydrate, purine-free diet and cinchophen (or substitute) for five days before and also for five days after operation.⁶ Improved control of gouty patients after removal of obviously infected foci has been reported.

There is disagreement as to the value of physical therapy (aside from simple heat or cold) during acute gouty arthritis and the intervals thereafter. Most physicians regard massage and exercises to be absolutely contraindicated at any stage of the attacks but helpful as a feature of interval therapy.²¹ But "cure crises" are often precipitated by such therapy; hence I do not recommend it.

Treatment of Chronic Gouty Arthritis.—Chronic gouty arthritis may be prevented by the regimen outlined; if not, various types of physical therapy are required, especially heat to foster resorption of urates. Fever therapy or typhoid vaccine reactions have been used occasionally. Massage, exercise and spa therapy must be used cautiously lest an exacerbation be evoked.

Treatment of Tophaceous Ulcers.—Large tophi on the hands and feet may ulcerate (in later phases of gouty arthritis) and partially heal, only to break down intermittently, sometimes discharging urates for months; occasionally they become infected, necessitating consideration of amputation. This eventuality can be avoided by the early excision of tophi in which ulceration is present or impending. When débridement is done thoroughly, prompt healing occurs. Unless the tophus is small it is best, before removal, to institute the regimen for the prevention of postoperative gouty arthritis.

Treatment of Renal and Other Complications.—The treatment of gouty nephritis involves a generous intake of fluids (2 or 3 liters daily), restrictions of protein as necessary, and continued efforts to combat the underlying gout and its hyperuricemia. Prevention of gouty calculi by urinary alkalization has been mentioned already. Nonopaque to roentgen rays, such calculi are usually small and pass without surgical intervention. There is no specific treatment for the cardiovascular complications of gout.

Prognosis: Results of Treatment.—Prognosis is best for those whose symptoms develop late, poorest for those with symptoms early in life, especially in their teens. Some patients have mild gout for years, only symptomatic on rare occasions after special stress such as a surgical procedure. Despite instructions, patients may fail to control their gout because of half hearted application of the regimen (the most common reason), because their gout is uncontrollable by diet alone (the next most common reason), because of irritating occupational or other trauma, the unwitting use of some medicinal provocative, or because of the presence of some chronic aggravating infection, blood dyscrasia, such as polycythemia or leukemia, chronic plumbism or coincidental metabolic fault (unsuspected mild diabetes or thyroid dysfunction). The correction of these factors usually results in improved control of the disease. Cases of truly uncontrollable or irreversible gout are not as common as some physicians suppose.

THE CLINICAL SYNDROME ASSOCIATED WITH INTERCAPILLARY GLOMERULOSCLEROSIS

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In 1936 Kimmelstiel and Wilson¹ reported on a group of 8 patients showing a striking hyaline thickening of the intercapillary connective tissue, most clearly seen at the hilus of the glomeruli. They felt that the change was degenerative and suggested that arteriosclerosis and diabetes mellitus played a part in its causation. The most significant clinical features of their cases were diabetes mellitus, usually of long duration, edema of the nephrotic type, gross albuminuria and varying degrees of hypertension.

This report is concerned with an analysis of the clinical and laboratory features of 8 patients who had mild diabetes mellitus, 6 of these showing at autopsy the intercapillary lesions in the glomeruli as described by Kimmelstiel and Wilson. Permission for autopsy on the other 2 was not obtained but we feel that their clinical course justifies the conclusion that they too would have shown these changes in the kidney.

REPORT OF CASES

CASE 1.—History.—J. W., a Negro aged 59, admitted to the medical service Oct. 27, 1937, complained chiefly of pain and tenderness of the left foot of three weeks' duration. One week previously his physician examined him and discovered

Dr. Paul Kimmelstiel analyzed the pathologic data.

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20. Callahan, E. J., and Ingham, D. W.: Gout: Report of Nine Cases with a New Addition to the Treatment. *M. Rec.* 149: 167-168 (March 1) 1939. Vorhaus and Kramer.² Kühnau, J.; Schroeder, H., and Wolff, O.: Einiges über die klinische Anwendung des Vitamins B₁. *Deutsche med. Wchnschr.* 2: 1407-1409 (Sept. 10) 1937.

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glycosuria. Polydipsia had been present for at least two years, swelling of the legs for three months and impairment of vision for a year or longer. He had been a bed patient since the onset of the involvement of the left foot.

The patient was well developed and well nourished. When he was examined he was lying flat in bed; there was no dyspnea and no distress. The temperature was 103.8 F., the pulse rate 110 and the respiratory rate 22 a minute. Examination of the optic fundi showed slight blurring of the nasal side of the disk and old exudates in both fundi, with marked arteriosclerosis of the retinal arteries. The heart was apparently normal in size and shape and there were no murmurs. There was no venous stasis. The blood pressure was 160-170 systolic and 90-105 diastolic. There were signs of patchy bronchopneumonia in both lungs. There was marked generalized arteriosclerosis, and no pulse was recorded in the posterior tibial or dorsalis pedis of either lower extremity. Ischemic gangrene of the anterior third of the left foot was present. There was moderate edema in the lumbosacral area.

Laboratory examination revealed the hemoglobin content to be 80 per cent, the red blood cell count 3,750,000 and the white blood cell count 22,750-34,240 with polymorphonuclear neutrophils 85 per cent-92 per cent. Urinalysis showed: specific gravity 1.020, albumin 3+, sugar 2+, acetone 0, and sediment containing a few hyaline and granular casts. Blood sugar was 206-296 mg. and nonprotein nitrogen 38-44 mg. per hundred cubic centimeters; total protein 4.8 Gm., albumin 2.6 Gm. and globulin 2.2 Gm. per hundred cubic centimeters, and cholesterol 320 mg. per hundred cubic centimeters.

During his stay in the hospital the gangrene of the left foot progressed and fever, varying from 102 to 104.4 F., continued. On the seventh hospital day the left leg was amputated below the knee. The bronchopneumonia became more widespread and the patient died on the fifteenth hospital day.

Necropsy.—There were marked generalized arteriosclerosis and bilateral bronchopneumonia. The heart weighed 330 Gm. Microscopically the kidneys showed intercapillary glomerulosclerosis of moderate degree but far in excess of mere aging processes. There was only a moderate degree of diffuse arteriosclerosis and no tubular dilatation. There was considerable edema of the interstitium between the tubules, particularly in the cortex and scattered foci of polymorphonuclear leukocytes, lymphocytes and a few monocytes and plasma cells. The microscopic changes were those of acute serous interstitial nephritis and moderate intercapillary glomerulosclerosis.

CASE 2.—History.—J. K., a white man aged 62, seen in the outpatient department Oct. 7, 1935, complained chiefly of breathlessness with effort and recurring episodes of nocturnal dyspnea accompanied by cough.

Examination of the optic fundi revealed arteriosclerosis 2+ and no hemorrhages, exudates or edema of the disk. There was moderate cardiac hypertrophy; the second pulmonic sound was decidedly accentuated. Medium moist rales were heard at the lung bases. The blood pressure was 208 systolic and 124 diastolic; the pulse rate was 96; there was sinus rhythm. There was no dependent edema.

On laboratory examination the urine had a specific gravity of 1.025, albumin 2+ and sediment containing occasional hyaline casts. A blood count was normal and the Wassermann reaction was negative. Blood sugar was 154 mg. and nonprotein nitrogen 43 mg. per hundred cubic centimeters.

The patient was referred to the hospital for treatment and was discharged October 21. The diagnosis was hypertension, coronary insufficiency, cardiac hypertrophy, left ventricular failure and mild diabetes mellitus.

The patient was readmitted March 7, 1936, the chief complaint being breathlessness and recurring attacks of severe pain in the epigastrium radiating around the right costal margin.

The blood pressure was 230 systolic and 120 diastolic. There was tenderness over the gallbladder area, but otherwise no material change was found.

Urinalysis showed: specific gravity 1.024, albumin 2+, sugar 0 and sediment 0. Blood sugar was 157-224 mg. and nonprotein nitrogen 43 mg. per hundred cubic centimeters.

An added diagnosis of cholelithiasis was made.

The patient was admitted for the third time on November 3 with the chief complaint of pain in the upper right quadrant of three days' duration. The diagnosis was gallstone colic.

He was admitted for the fourth and final time on Feb. 3, 1937 with the chief complaint of orthopnea and progressive edema of the lower extremities.

When examined the patient was dyspneic and was propped up in bed. The heart was greatly enlarged. The blood pressure was 170-190 systolic and 118-120 diastolic. The pulse rate was 90-110 a minute; there was sinus rhythm. General venous hypertension was present. Postural edema extended up to the umbilicus. There were bilateral pleural effusion and moderate ascites.

On laboratory examination the urine showed a specific gravity of 1.030, albumin 3+ and sugar 0 and sediment containing a few hyaline and granular casts. Blood sugar was 162 mg., nonprotein nitrogen 55 mg. per hundred cubic centimeters; total protein 4.4 Gm., albumin 2.1 Gm. and globulin 2.3 Gm. per hundred cubic centimeters, and cholesterol 152 mg. per hundred cubic centimeters.

The patient became progressively worse and died on the tenth hospital day.

Necropsy.—The condition shown at necropsy was generalized arteriosclerosis; pronounced coronary sclerosis, cardiac hypertrophy (weight 700 Gm.); chronic passive congestion and cardiac cirrhosis of the liver. Microscopically the kidneys showed severe arteriosclerosis and arteriolar sclerosis and intercapillary glomerulosclerosis of a moderate degree. The tubules showed vicarious hyperplasia and hypertrophy.

CASE 3.—History.—M. T., a white woman aged 41, was admitted to the surgical service April 25, 1937 and died April 26. Her chief complaint was pain in the right lower quadrant, which was followed by generalized abdominal pain and tenderness. The illness was of thirty-two hours' duration. There was a history of polyuria and polydipsia for "many years," but no diagnosis of diabetes had been made.

On examination the patient was extremely ill. The temperature was 103.4 F., the pulse rate 120-140 and the respiratory rate 25-30 a minute. The heart and lungs were essentially normal; the arteries showed moderate arteriosclerosis. The blood pressure was 100-120 systolic and 65-75 diastolic. The phenomena of generalized peritonitis were evident.

Urinalysis showed a specific gravity of 1.032, albumin 4+, sugar 2+ and sediment 0. A blood count showed hemoglobin 100 per cent, red cells 5,200,000 and white cells 7,350, with a differential of 92 per cent polymorphonuclear neutrophils. The blood sugar was 400 mg. and nonprotein nitrogen 54 mg. per hundred cubic centimeters.

The patient died fourteen hours after admission to the hospital.

Necropsy.—This revealed generalized fibropurulent peritonitis following a ruptured gangrenous appendix. The heart weighed 350 Gm. The kidneys showed a moderate degree of intercapillary sclerosis involving all the glomeruli. The medium sized arteries showed only a slight degree of sclerosis, but there was a severe and diffuse arteriolar sclerosis. The tubules showed acute dilatation and there was some interstitial serous nephritis.

CASE 4.—History.—E. Mc., a Negro woman aged 55, was admitted to the medical service on Sept. 23, 1936 and died October 21. Her chief complaint was diarrhea with swelling of the feet, legs and abdomen. The swelling began in her feet in March 1936. This progressively increased until it became generalized, including the face. Diarrhea began three weeks before her admission to the hospital. The only significant statements suggesting diabetes were an excessive appetite with loss of weight, polyuria and polydipsia. Ten years previously, at a time when she felt well, she had expectorated blood on one occasion. There had been intermittent vaginal bleeding for three years and bleeding hemorrhoids for ten or more years.

Physical examination revealed generalized edema including the face, ascites and bilateral pleural effusion. The heart was normal. The blood pressure was 160-180 systolic and 80-90 diastolic. The peripheral vessels showed arteriosclerosis and atherosclerosis; the venous pressure was normal. The optic fundi showed arteriosclerosis 1+ and no edema, hemorrhages or exudates.

Urinalysis showed: specific gravity 1.016-1.018, albumin 3 + - 4 +, sugar 0, and sediment containing occasional hyaline and granular casts. A blood count showed hemoglobin content 48 per cent, red cells 2,520,000, and white cells 5,600 with a normal differential count. The hematologist who was consulted stated that the picture presented by the blood studies was that of chronic blood loss. The blood sugar was 196-260 mg., nonprotein nitrogen 30-53 mg., and cholesterol 224 mg. per hundred cubic centimeters; total protein 4.9 Gm., albumin 2.1 Gm. and globulin 2.8 Gm. per hundred cubic centimeters.

Necropsy.—The heart weighed 250 Gm. Submucous uterine fibroids were present. Microscopically the kidneys showed severe and diffuse arteriosclerosis and arteriolar sclerosis. The glomeruli showed advanced intercapillary sclerosis with occasional degenerative glomerulitis and numerous adhesions with extensive changes in the capsules. The tubules showed severe tubular dilatation and extensive metallaxis.

CASE 5.—History.—H. C., a white man aged 57, was admitted to the medical service on Sept. 12, 1936 and died September 13. He was admitted because of unconsciousness which developed suddenly and had become increasingly more complete. A history of diabetes "for many years" was obtained from the family.

When examined the patient was completely unconscious, and there was a flaccid paralysis of the left arm and leg. The optic fundi showed arteriosclerosis 2+ of the retinal vessels and many fresh hemorrhages, but there was no exudate or edema of the disk. The heart was moderately enlarged to the left, with a rate of 102. The peripheral arterics showed a moderate degree of arteriosclerosis. The blood pressure was 200 systolic and 104 diastolic. There was pitting edema of the legs extending to the thighs.

Urinalysis showed: specific gravity 1.025, albumin 4 +, sugar 1 +, sediment 0. The blood sugar was 320 mg., nonprotein nitrogen 46 mg. per hundred cubic centimeters; total protein 4.6 Gm., albumin 2.2 Gm. and globulin 2.4 Gm. per hundred cubic centimeters.

Death occurred a few hours after admission to the hospital, probably the result of a cerebral hemorrhage.

Necropsy.—This was confined to the left kidney. There was advanced intercapillary glomerulosclerosis with obvious deposition of hyaline and fat in the parietal capsule. There was extensive sclerosis of the arteries and arterioles. The tubules showed vicarious hyperplasia and hypertrophy. There were extensive metallaxis and scarring of the kidney tissue.

CASE 6.—History.—H. S., a Negro aged 52, admitted to the medical service July 31, 1939 and discharged August 17, complained chiefly of swelling of the legs and abdomen of three months' duration and mild breathlessness with effort. The patient stated that sugar had been found in his urine three years previously but that he had not followed the treatment prescribed.

The patient was moderately dyspncic, with extensive edema of the legs and sacral area, together with a moderate amount of ascites and bilateral pleural effusions. The optic fundi showed a moderate degree of sclerosis of the retinal vessels but no exudates or hemorrhage. The heart was enlarged, with a cardiothoracic ratio of 57 per cent. An electrocardiogram showed T₁ and T₂ isoelectric, with left axis deviation. The blood pressure was 175-185 systolic and 100-110 diastolic, pulse rate 88-96 a minute. There was moderate venous hypertension. The liver was 4 cm. below the costal margin; ascites was moderate.

Urinalysis showed: specific gravity 1.020-1.022, albumin 3 +, sugar 0-1 +, sediment 0. A blood count showed hemoglobin content 84 per cent, red cells 4,200,000; the leukocyte and differential counts were normal. The blood sugar was 192-246 mg., nonprotein nitrogen 36 mg., cholesterol 214 mg., and total protein 4.3 Gm., albumin 2.1 Gm. and globulin 2.2 Gm. per hundred cubic centimeters.

The clinical diagnosis was (1) cardiac hypertrophy and dilatation, (2) coronary insufficiency, (3) generalized arteriosclerosis, (4) mild congestive heart failure, (5) mild diabetes mellitus and (6) intercapillary glomerulosclerosis.

The patient showed satisfactory improvement after institution of a salt-poor diabetic diet, bed rest and mercury diuretics. He was discharged to the cardiac and diabetic clinics.

He was readmitted September 23. During his second hospital admission generalized edema, ascites and recurring pleural effusions were the most prominent clinical symptoms. Heart failure of the congestive type was never conspicuous, yet it existed to a mild degree. The blood pressure ranged from 140-160 systolic and 90-110 diastolic.

Urinalysis showed: specific gravity 1.012-1.018, albumin 4 +, sugar 0-1 +, sediment 0. Blood counts showed: hemoglobin content 80-85 per cent, red cells 4,100,000-4,300,000, with normal leukocyte and differential counts. The blood sugar was 150-220 mg., nonprotein nitrogen 34-48 mg., cholesterol 270-296 mg. per hundred cubic centimeters; total protein 4.5-5.1 Gm., albumin 2.2-2.5 Gm. and globulin 2.3-2.6 Gm. per hundred cubic centimeters.

The hospital course was characterized by unsustained improvement following administration of digitalis and diuretics, frequent thoracentesis and controlled diet. Death resulted from bronchopneumonia on December 9.

Necropsy.—The heart weighed 500 Gm. There was severe coronary arteriosclerosis. The lungs showed bronchopneumonia, bilateral, involving the lower lobes. Microscopically the kidney



Basement membrane stain. Thickened and hyalinized intercapillary connective tissue more pronounced, though of the same type as seen in the aging process of glomerulus. The capillary loops, endothelial and epithelial cells are normal. (Case of diabetes in middle aged person.)

showed severe arteriosclerosis, arteriolar sclerosis and extensive intercapillary sclerosis involving practically all of the glomeruli. There was vicarious hyperplasia and hypertrophy with deposition of fat and some hyaline droplets, degeneration of the tubules and a moderate degree of metallaxis.

CASE 7.—A. C., a white woman aged 67, admitted to the outpatient department in January 1935, complained chiefly of loss of 50 ± pounds (23 Kg.), breathlessness with effort, moderate edema of the ankles and polyuria. Examination revealed hypertension; the blood pressure was 210 systolic and 120 diastolic; there were general arteriosclerosis and probably cardiac enlargement but no phenomena of heart failure. Urinalysis showed albumin 2 + and sugar 3 +. The blood sugar was 280 mg. per hundred cubic centimeters. She was followed as an ambulatory patient in the diabetes clinic until Dec. 4, 1936.

She was first admitted to the hospital in the medical service on Jan. 5, 1938, and from this date until she left the city in December 1939 she was admitted eight times, remaining in the hospital on an average of eleven days.

The chief complaints on each admission were essentially the same, yet there was some variability in their severity. Breathlessness with effort was consistently present, but with

each admission edema was a prominent complaint, and on four occasions the edema was extensive and complicated by hydrothorax and ascites. The optic fundi showed arteriosclerosis 1+, without exudates or hemorrhages. The heart was moderately enlarged with a cardiothoracic ratio of 54 per cent. An electrocardiogram showed left axis deviation and moderately inverted T₁. The blood pressure was 165-190 systolic and 95-110 diastolic. The venous pressure was 110-120 mm. of water.

Urinalysis showed specific gravity 1.014-1.022, albumin 2+4+, sugar 0-2+, sediment 0. Blood counts showed: hemo-

TABLE 1.—Symptoms and Signs of the Syndrome of Inter-capillary Glomerulosclerosis

Condition	Per Cent
Diabetes mellitus.....	100
Albuminuria, 2-4+.....	100
Hypertension, under 200.....	63.3
Hypertension, over 200.....	36.6
Hypoalbuminemia, 2-6%.....	100
.....	75
.....	87.5
.....	12.5
.....	50
.....	50
Retinal changes,† arteriosclerosis.....	100
Retinal hemorrhage and exudates.....	50

* Associated with chronic hemorrhage.

† Two cases not examined.

globin content 75-85 per cent, red cells 3,400,000-4,100,000 and white cells 7,800-9,600, with a normal differential count. The blood sugar was 140-310 mg., nonprotein nitrogen 27-48 mg., and cholesterol 186-264 mg. per hundred cubic centimeters and total protein 4.4-5.1 Gm., albumin 2.4-2.6 Gm. and globulin 1.7-2.6 Gm. per hundred cubic centimeters.

The patient was consistently partially relieved of the edema by mercury diuretics in conjunction with ammonium chloride. The diabetes was moderately controlled with diet. The impression at the time of the last hospital admission was that her life expectancy was short and that death would result from cardiac and renal failure.

The clinical diagnosis was (1) hypertension, arteriosclerosis, cardiac hypertrophy, myocardial fibrosis, coronary artery sclerosis; (2) diabetes mellitus, mild; (3) nephrosclerosis with intercapillary glomerulosclerosis, severe; (4) nephrotic syndrome; (5) heart failure, congestive type, mild.

CASE 8.—C. W., a white woman aged 39 at the time of her death on Feb. 1, 1938, was first admitted to the medical service April 4, 1929 with a diagnosis of pyogenic infection of the right thumb and diabetes. The blood pressure was 100 systolic and 68 diastolic. Urinalysis showed specific gravity 1.022, albumin 0, sugar 3+. The nonprotein nitrogen was 26 mg. and the blood sugar 344 mg. per hundred cubic centimeters.

From 1929 to 1932 she was readmitted for various types of cutaneous infection, but nothing specific was noted, the diabetic state being partially controlled with diet and insulin.

She was readmitted to the hospital on April 14, 1932 because of pains in the lower extremities and edema of the ankles and eyelids. Examination showed edema of the eyelids, normal fundi, subnormal blood pressure, 98 systolic and 65 diastolic, slight edema of the ankles with absence of pulsation in the posterior tibial and dorsalis pedis arteries, diminished deep reflexes of the knee and achilles tendon.

The electrocardiogram was normal. The basal metabolic rate was +2 per cent. Urinalysis showed specific gravity 1.026, albumin 2+, sugar 3+, sediment 0. The blood count was normal. The blood sugar was 148-344 mg., nonprotein nitrogen 27-42 mg., cholesterol 276 mg. per hundred cubic centimeters; total protein 5 Gm., albumin 3.3 Gm., globulin 1.7 Gm. per hundred cubic centimeters. She was discharged to the diabetic clinic for treatment after eleven days of hospital care.

She was readmitted to the hospital on May 13, 1937 because of progressively increasing edema of the legs and abdomen, weakness, pain in the feet and slight breathlessness with effort, which developed after the edema extended to the abdomen. Physical examination showed edema of the lower extremities with a moderate amount of ascitic fluid, a blood pressure of 160 systolic and 80 diastolic, and generalized arteriosclerosis with

absence of pulsation in the posterior tibial and dorsalis pedis arteries. The optic fundi showed arteriosclerosis of the retinal vessels 1+ and an occasional flame hemorrhage; there was no edema of the disk.

Urinalysis showed specific gravity 1.016, albumin 3+, sugar 0 and sediment 0. The hemoglobin content was 78 per cent and red blood cells numbered 3,740,000. Blood sugar was 137-220 mg., nonprotein nitrogen 35-38 mg. and cholesterol 412 mg. per hundred cubic centimeters. The patient showed some improvement on a diabetic regimen with insulin, bed rest and mercury diuretics. She was discharged to the diabetes clinic.

She was readmitted on October 16 because of generalized edema and breathlessness. Physical examination showed generalized extensive edema, ascites and pleural effusion on the right side. The optic fundi showed no edema of the nerve head; there were superficial and deep hemorrhages and many cotton wool exudates; arteriosclerosis was 2+. There was generalized arteriosclerosis. A teleroentgenogram revealed a cardiothoracic ratio of 51 per cent; the blood pressure was 170 systolic and 100 diastolic. The electrocardiogram was normal. There were no evident signs of congestive heart failure.

Urinalysis showed specific gravity 1.011-1.020, albumin 4+, sugar 0-1+ and sediment 0. A blood count showed hemoglobin content 70 per cent, red cells 3,620,000 and white cells 7,400, with a normal differential count. Blood sugar was 150-186 mg., nonprotein nitrogen 40-52 mg. and cholesterol 160-204 mg. per hundred cubic centimeters and total proteins 4.2-4.4 Gm., albumin 2.6-2.8 Gm. and globulin 1.6-1.8 Gm. per hundred cubic centimeters. The congo red test showed retention of 66 per cent of the dye for sixty minutes. The phenolsulfonphthalein test resulted in 24 per cent excretion for two hours.

There was a moderate reduction in the edema following the use of mercury diuretics and the restriction of salt and water. The right pleural cavity was aspirated three times; the total fluid removed was 2,650 cc., which had a specific gravity of 1.012-1.014. The patient was discharged from the hospital on Jan. 29, 1938 and died at her home February 1.

There was no autopsy. The clinical diagnosis was (1) diabetes mellitus, (2) generalized arteriosclerosis, (3) severe intercapillary glomerulosclerosis, (4) nephrotic syndrome and (5) renal insufficiency (table 1).

COMMENT

In the choice of cases for this study we have selected patients who showed both advanced and mild degrees of hyaline thickening of the intercapillary tissue of the glomeruli. Also included are two patients who were

TABLE 2.—Heart Weights

Case	Heart Weight in Gm.	Sex	Age	Blood Pressure		Cardio-thoracic Ratio, per Cent
				Systolic	Diastolic	
1. J. W.	330	♂	59	160-170	90-105	
2. J. K.	700	♂	62	170-208	90-124	
3. M. T.	350	♀	41	100-120	65-75	
4. E. Mc.	250	♀	55	160-150	80-90	
5. H. C.	No data	♂	57	200	100	
6. H. S.	500	♂	52	140-185	90-110	
No Autopsy						
7. A. C.	...	♂	67	210	120	54
8. C. W.	...	♀	39	100-170	60-100	51

* Blood pressure probably depressed by the toxemia of peritonitis.

followed clinically from an early stage to the time the syndrome became fully developed. An analysis of these cases shows that the well developed syndrome probably represents the end stage of a progressive process, the latter phase being preceded by certain suggestive clinical changes and laboratory studies, one of these being the appearance of albuminuria during the course of mild diabetes in a patient past the fourth decade. A review of case 8 illustrates the most probable course of events and its relation to the progress of the renal lesions. The diagnosis of diabetes mellitus was made in 1929. Albuminuria, mild edema, arteriosclerosis and

mild hypoproteinemia were first recognized three years later in 1932. At this time the blood pressure was 98 systolic and 65 diastolic. Five years later, in 1937, the edema was excessive, the blood pressure 160 systolic and 80 diastolic, arteriosclerosis more advanced, albuminuria 3+ and total proteins of 4.1 Gm. per hundred cubic centimeters. The patient died in 1938 after a prolonged illness characterized by generalized edema of the nephrotic type, and hypertension (160-180 systolic and 80-95 diastolic). The immediate cause of death is not known, for the patient died at home; however, renal insufficiency was evident when the patient left the hospital.

In this series of cases, both from the clinical standpoint and from the autopsy material studied, one is impressed not only by the renal lesions but also by the arteriosclerosis throughout the vascular tree, particularly in the coronary, mesentery and the arteries of the lower extremities. Hypertension was found at some time during the period of observation in all except case 3; yet in only three cases did the pressure exceed 200 mm. of mercury systolic at any time during observation. The heart weights (table 2) were in three instances within the range of normal from 250 to 350 Gm., and in case 8 there was no significant cardiac enlargement. These facts suggest that the associated hypertension was of a mild type or of short duration.

Newburger and Peters² in a recent report state that the pathogenesis of this condition may "depend on severe and extensive arterial and arteriolar degeneration associated with and perhaps resulting in diabetes mellitus, hypertension and renal damage." They also emphasize the fact that the cases studied by them presented many of the features of malignant hypertension. This may be true at times, but from a study of our material we cannot conclude that features of malignant hypertension are an essential aspect of the clinical syndrome of intercapillary glomerulosclerosis. In fact, none of our patients, with the possible exception of the first one, showed the presence of the optic fundus changes characteristic of malignant hypertension, nor did the kidneys in any case show the arteriolar changes characteristic of malignant nephrosclerosis. With regard to the relationship of diabetes mellitus to renal lesions and hypertension, it may be safely stated that from a study of our cases it is evident that diabetes mellitus either preceded or developed concomitantly with the intercapillary glomerulosclerosis. In one case diabetes mellitus existed for many years and was complicated by albuminuria, hypoproteinemia and edema before hypertension developed. This suggests that the changes in the glomeruli and renal vascular apparatus did not result from but preceded the hypertension. In contrast to the diabetes mellitus, the hypertension appears at a later stage, corresponding to the time when the renal vascular lesions have become advanced.

In 1935 Kimmelstiel³ described in the arteriosclerotic kidney a broadening and hyalinization of the intercapillary axial connective tissue. He interpreted the changes as an aging phenomenon of the glomerulus. It would appear that the changes observed in the patients under consideration represent an accelerated and advanced aging phenomenon, probably related to or possibly precipitated by diabetes mellitus. It has been recognized for some time that patients who have

mild diabetes mellitus and who have reached the fourth decade do have accelerated vascular changes in the coronary and peripheral arteries, and often with only mild degrees of hypertension; frequently the vascular changes are more pronounced in one area of the vascular tree than in another—the reason for which is not clear. Therefore it is suggested that the intercapillary changes in this group of patients may represent another instance of a predilective degenerative process occurring in mild diabetes mellitus which culminates in the syndrome under discussion.

CONCLUSIONS

1. Intercapillary glomerulosclerosis is an accelerated aging process occurring in mild diabetes mellitus and is accompanied by widespread arteriosclerosis.

2. The well developed syndrome is characterized by mild diabetes mellitus, albuminuria, varying degrees of hypertension, arteriosclerosis, edema and hypoproteinemia. The development of the renal changes alters the clinical course of an otherwise mild diabetes mellitus leading to a serious and progressive malady.

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ABSTRACT OF DISCUSSION

DR. SOMA WEISS, Boston: Intercapillary glomerulosclerosis is primarily a descriptive term indicating a certain type of focal lesion of the renal glomerulus. Frequently, it is but an accidental microscopic finding without clinical significance. Glomerulosclerosis represents a degenerative process occurring usually in association with renal arteriosclerosis or arteriolar sclerosis with or without diabetes. It can be superimposed also on the usual lesions of glomerulonephritis. Intercapillary glomerulosclerosis assumes clinical interest only if the lesions described by Drs. Walker and Porter are prominent and diffuse. Such diffuse intercapillary glomerulosclerosis is prone to be associated with albuminuria, hypoproteinemia and a tendency to anasarca. This nephrotic syndrome of intercapillary glomerulosclerosis, in contrast to that of so-called lipoid nephrosis, occurs most frequently after the age of 40 and is often associated with some degree of hypertension. Hypertension, however, is not always present. Thus, it is known that broadening of the glomerular intercapillary connective tissue, a manifestation of an aging process, can be independent of arterial hypertension. Hypertension and the renal arteriolar lesions are independent of the specific lesions of intercapillary glomerulosclerosis, although they may all depend on a common primary cause. The combination of diabetes, nephrotic syndrome and vascular sclerosis makes the diagnosis of intercapillary glomerulosclerosis probable. In recent years, such correct diagnosis has been made on several occasions in the clinic. It is significant that here we are dealing with a type of nephrotic syndrome in which the causative lesion can be clearly placed within the glomerulus. The tubules are normal or contain some fat. The clinical syndrome of nephrosis is related to various types of renal disease in which the determining lesion is probably located in the glomerulus and not in the tubules. Thus, glomerulonephritis, amyloid renal disease, glomerulonephrosis of toxemia of pregnancy, lipoid nephrosis (although glomerular lesions of etiologic significance are denied by some) and intercapillary glomerulosclerosis are associated with glomerular lesions and the nephrotic syndrome. According to this concept, we should differentiate different types of nephrosis or nephrotic syndromes.

DR. PAUL KIMMELSTIEL, Richmond, Va.: I should like to speak about the differentiation of this lesion to one which, histologically and partially clinically, may be very similar to the intercapillary glomerulosclerosis, namely a certain type of subacute glomerulonephritis which Fahr and Volhard referred to as intracapillary glomerulonephritis. I had difficulty in distinguishing these conditions from each other during the first cases. The difference I was finally able to demonstrate is shown in lantern slides. The first one is from a case of intracapillary glomerulonephritis, a subacute phase, which clinically invariably is associated with a marked degree of nephrotic syndrome.

2. Newburger, R. A., and Peters, J. P.: Intercapillary Glomerulosclerosis: A Syndrome of Diabetes, Hypertension and Albuminuria, *Arch. Int. Med.* 64: 1252-1264 (Dec.) 1939.

3. Kimmelstiel, Paul: Glomerular Changes in Arteriosclerotic Contraction of the Kidney, *Am. J. Path.* 11: 483-496 (May) 1935.

There is a thickening of intercapillary connective tissue, just as in the intercapillary glomerulosclerosis, but the next slide shows the essential difference; namely, the peripheral capillaries are narrow and the basement membrane at the very periphery is split up. This process is one which does not spread from the hilus of the glomerulus as it does in glomerulosclerosis but is one which simultaneously involves all capillaries of the glomeruli, and therefore the peripheral capillaries as well as those in the center. In the next slide (high power) the peripheral capillary is shown to be split up and it is blurred, in contrast to the intercapillary sclerosis shown in the next two slides, in which the peripheral capillary appears as a fine line, which is not teased up and not blurred, the capillary being open rather than narrow. Although those conditions histologically as well as clinically are similar in many cases, they can easily be distinguished clinically as well as microscopically. I have observed about 12 cases of this disease in Richmond during five years, that, is within about fifteen to eighteen hundred autopsies. In my first investigation in Boston I saw 9 cases from autopsy material taken from the complete collection of the Mallory Institute from 1898 to 1934; I would say about ten times more autopsies. The seeming increase of frequency is easily explained. The cases selected in Boston were taken only from autopsies in which cardiac hypertrophy and arterial hypertension were noted during life and at autopsy. There were only 9 cases. The cases in Richmond, however, were selected consecutively throughout the entire time, and only about half of these cases really did show hypertension. Therefore I certainly agree with the authors' conception that hypertension is not an essential part of this disease and certainly does not cause it.

DR. SHEPPARD SIEGAL, New York: At Mount Sinai Hospital in New York we had been interested primarily in a clinical syndrome, and we then discovered that it was associated with the type of lesion presented here by Drs. Porter and Walker. In other words, we found that among diabetic patients there was an unusual incidence of the nephrotic picture. On study of these cases, of which it was possible to collect about 13, 5 of them which I was able to follow to necropsy all showed the typical kidney lesion just described. At present further study of this problem is being pursued from the postmortem point of view. Dr. Allen in the pathology department and I have studied 200 control cases, in none of which was diabetes present, 100 without hypertension, 100 with hypertension, and in none of the 200 cases was the lesion found at all. On the other hand, of 100 unselected diabetic patients whose kidneys were thoroughly studied, we found that 33 of them showed this lesion. They did not all show the lesion to the extent to which it has been present in the cases shown here; in some of them the lesion occurred in only a few glomeruli. Those cases in which the lesion was not extensive showed no element or no significant element of the syndrome as here presented. It is important to emphasize that the lesion may occur in diabetic patients without the syndrome. It seems to be correlated more with the diabetes than with either the hypertension or any of the other elements of the syndrome. But when the lesions are extensive it is true that then one is likely to have pretty much the fully developed syndrome which has been presented here.

DR. WILLIAM B. PORTER, Richmond, Va.: We are conscious of the fact that one is stepping on dangerous ground when one attempts to establish a clearcut syndrome when the disease is a chronic degenerative one. However, we feel that this clinical entity is fairly well established and can be recognized at the bedside, and one can anticipate that the pathologist will find what has been described by Dr. Kimmelstiel. There is one hitch in the differential diagnosis which has not been touched on, namely the differential diagnosis between subacute glomerulonephritis complicated by the nephrotic syndrome. That is a pitfall which is likely to creep into the differential diagnosis. We feel that there are two important features which should favor nephritis versus the syndrome of intercapillary glomerulosclerosis. Anemia is almost a universal finding in glomerulonephritis, whereas in intercapillary glomerulosclerosis anemia is not an important feature of the syndrome. The second and important point is that as a rule the nephrotic stage of glomerulonephritis is a disease which occurs in the age group under 50, whereas the majority of these patients are beyond 50.

TREATMENT OF UTERINE FIBROMYOMAS

WILLIAM E. COSTOLOW, M.D.
LOS ANGELES

Several years ago a report¹ was published on 604 patients with uterine fibromyoma treated between 1921 and 1926 by means of radiation therapy in our practice (Soiland, Costolow and Meland). Since that time 1,137 additional patients have been treated. A statistical analysis has been made of 1,009 of those treated between 1927 and 1937, with a follow-up of from two and one-half to twelve and one-half years. Of this group, 23 were either "lost" or impossible to follow for a two and one-half year period. However, several of these patients showed improvement when last examined, and we believe the final results would conform to the findings of the large group. It is doubtful if many of them were later operated on, as it is logical to assume that those patients who found treatment unsatisfactory would have returned. At any rate, in analyzing a large group of 986 cases, 23 missing is too insignificant greatly to affect the total average result. We have excluded patients with benign uterine bleeding and fibrosis uteri and those without uterine enlargement or nodular involvement. The size of the uterine masses in this series varied from small nodular uteri two times normal size to uterine masses the size of an eight months pregnancy.

The majority of our patients were referred by other physicians for radiation therapy. Hence most of the cases were selected especially for irradiation. One of the leading surgeons in our community has alone sent us over 200 patients whom he selected for radiation therapy instead of operation. During these years we saw, in addition, 204 patients to whom treatment was not given either because of some contraindication to radiation therapy or the patient's choice of surgical intervention. We believe the careful selection of cases is the most important single factor contributing to success in the treatment of fibroids by radiation therapy. The diagnosis of fibroid tumors should be established as definitely as possible before radiation therapy is commenced. With large tumors, this is often difficult, and we believe a good rule to follow is that in cases where doubt exists as to diagnosis, operation is the treatment of choice. We accepted a number of patients with the larger tumors, in the treatment of which radiation would usually be contraindicated, either because the patient refused to have an operation or a physical condition precluded surgical intervention. In many of these patients we have obtained surprisingly good results.

Radiation has been used successfully for many years in the treatment of certain uterine fibromyomas, and the gynecologic literature from all parts of the world is replete with reports on its success as a method of treatment in this condition. On the other hand, surgical intervention has also proved to be a satisfactory means of treatment, even though it carries a low but definite morbidity and mortality rate. A number of patients no doubt require operation; nevertheless many may be treated by radiation therapy with less morbidity and mortality.

From the Los Angeles Tumor Institute, 1407 South Hope Street.
Read before the Section on Radiology at the Ninety-First Annual Session of the American Medical Association, New York, June 12, 1940.
1. Soiland, A.; Costolow, W. E., and Meland, O. N.: *California & West. Med.* 20: 234 (April) 1929.

Taylor² stated that "there should be no quarrel between the surgeon and the radiologist over the treatment of fibroid tumors—indications will become more clearly defined." Contraindications to irradiation have been established for many years and handed down through the literature. Some of these are definite and can be easily followed. Others, however, possibly are too rigid to be exactly substantiated, and patients for radiation therapy are no doubt being selected too conservatively.

Some of the factors which have been employed in the choice of a method for treating fibroid tumors are age of the patient, size and type of tumor, presence of associated pelvic disorders and effect of menopausal symptoms on the patient. It is our purpose to consider these factors in this report, together with any after-effects on the remaining uterus or residual fibroid masses in regard to later bleeding and pressure symptoms, or the subsequent development of disease.

AGE OF PATIENT

Of considerable importance in deciding between radiation therapy and surgical intervention is the age of the patient. In younger women it is, of course, desirable to attempt to preserve not only ovarian function as much as possible but in some cases also to preserve the child-bearing function. Myomectomy often achieves the desired result. The observation of Bland Sutton made many years ago that "after enucleation of a fibroid in the procreative period of life, a woman is more likely to grow another fibroid than to conceive successfully" is not exactly in keeping with more recent surgical reports. Bonney³ reported that in a series of six hundred myomectomies for fibroid tumors only 10 patients had recurrences, and in 137 married women a total of 52 (38 per cent) became pregnant. Counselor⁴ of the Mayo Clinic stated that according to statistics 35 per cent of the patients do become pregnant following myomectomy. Recurrences of myomas took place in 20 per cent of the patients younger than 40 and in 8 per cent of those more than 40 years of age.

Fortunately, the majority of uterine fibroid tumors occurs in women around 40, or near the menopausal age, when the preservation of ovarian function is unimportant. In a former series¹ the average age was 43.2, and in this series (1927 to 1937) 42.5 years, with only 26.7 per cent under 40 and 73.3 per cent over 40 years.

Hence consideration of menopausal symptoms was not so important in our series inasmuch as 73 per cent of these patients were in the menopausal age. Fibroid tumors probably occur fairly often in women in their earlier years, but in the majority of cases symptoms necessitating treatment do not arise until around the menopausal age.

ASSOCIATED PELVIC INFLAMMATION

For many years a history of previous pelvic inflammation has been mentioned in the literature as a contraindication to radiation treatment of uterine fibromyomas, but little proof has been shown of any acute infections occurring after irradiation. The fact that preexisting adnexal inflammation is present in fibromyoma has been established beyond doubt. In 150 consecutive patients with fibromyoma operated on at

St. Luke's Hospital, Wood⁵ found chronic adnexal infections in only 28 per cent. Other reports (Ford⁶) have shown evidence of as high as 40 per cent associated chronic inflammation in patients.

Theoretically, dilation and curettage with insertion of radium might stir up preexisting chronic inflammation. There is, however, no reason why external roentgen ray therapy should do this. In fact, this method of therapy has been successfully used in the treatment of chronic pelvic inflammation. In our series of 986 cases, in only 1 did there develop an acute inflammatory process after irradiation. The inflammation in this patient followed curettage and the insertion of radium. No acute inflammation resulted in any patient treated externally by means of roentgen rays alone. Inasmuch as 61.5 per cent of our patients were treated by radium given intrauterinely plus roentgen rays, and 5.5 per cent by radium alone, the importance of associated pelvic inflammation as a contraindication is difficult to understand.

TECHNIC

In our series, 61.5 per cent of the patients were treated by both radium and roentgen rays; 33.0 per cent, by roentgen rays alone, and only 5.5 per cent, by radium alone. In the use of both roentgen rays and radium, only small doses of each are necessary. Curettage to rule out malignant disorders as well as to discover the presence of submucous fibroid growths is important. This should be a routine procedure in practically all cases of uterine fibromyoma. If curettage is done, the application of radium at the same time is simple. In patients with severe hemorrhage, radium combined with roentgen rays will often produce a more rapid cessation of bleeding than roentgen rays alone. Usually the large tumors are better treated with roentgen rays alone. In these, because of the intervening distance, radium inserted intrauterinely may not be suitable for applying a sufficient dose to the ovaries. The amount of radium applied intrauterinely is small, approximately 1,000 to 1,200 milligram hours. An applicator with two 25 mg. radium tubes in tandem and a filtration equivalent to 1 mm. of platinum is used. This prevents strong reactions on the endometrium which might produce atresia of the canal or later leukorrheal discharge. The roentgen dose averages from 400 to 500 roentgens in the mid-pelvis. Increased doses were used occasionally in the large tumors. However, it is doubtful if much additional shrinkage was obtained in them from the greater amount of irradiation action on the tumor cells themselves. The cells in this type of tumor when located in other parts of the body are resistant to irradiation, and the same principle probably applies here. Some questionable evidence exists to show that even after menopause irradiation shrinkage may be induced in large tumors. A case in point in our series is as follows:

A woman aged 50 with a chief complaint of uterine tumor the size of a 4 months pregnancy applied for treatment in July 1933. She had ceased to menstruate three years previously and had had hot flashes and evidences of menopause. For the past two weeks she had noticed slight spotting of blood and pressure symptoms. Curettage was negative for malignant growths and radiation treatment was instituted. A recent examination of this patient, six and one-half years later, revealed the uterus to be atrophic.

However, most shrinkage is undoubtedly produced by the action of the rays on the ovaries with the production of the menopause.

2. Taylor, H. C., Jr.: *Bull. New York Acad. Med.* 11: 368 (June) 1935.

3. Bonney, Victor: *Practitioner* 138: 1 (Jan.) 1937.

4. Counselor, V. S.: *Proc. Staff Meet., Mayo Clin.* 14: 817 (Dec. 27) 1939.

5. Wood, F. C.: *Roentgen Treatment of Uterine Fibromyomas*, J. A. M. A. 94: 601 (March 1) 1930.

6. Ford, F. A.: *Surg., Gynec. & Obst.* 42: 245 (Feb.) 1926.

tomless tumor will later cause any difficulty to the patient. Inflammatory degeneration of remaining fibroid masses is rare. In our experience, fibroid tumors the size of a 4 months pregnancy or larger are the only ones in which this has occurred, and we have observed only two such instances. Large, irregular, or multiple pedunculated tumors are more likely to degenerate, and consequently patients with these should be operated on if possible.

The determination of the size of the tumor by bimanual examination cannot be entirely accurate, and it is really a matter of estimation. The size of the tumors in our series varied from that of a 3 months or less to that about the size of an 8 months pregnancy. No case was included unless the uterus was either definitely enlarged to at least twice normal size or, although the uterus was small, definite nodules could be palpated proving the tumor to be a true fibroid.

In ascertaining the decrease in size after treatment, the estimations of 25 per cent, 50 per cent and 75 per cent reduction used in the large tumor group are probably open to question, but these calculations were made after examination. The after-treatment group designated as "slight enlargement of uterus remaining" included those patients in whom a slight irregularity or nodulation of the fundus could be felt or in whom the uterus was still enlarged less than twice its normal size.

Tables 1 and 2 are self explanatory and show the effect of irradiation in regard to reduction in size of the tumor in the various groups, the number of patients operated on, the occurrence of pressure symptoms and the percentage of relief. The size of the tumor and the number of cases of each type are as follows: 3 months' pregnancy or less, 722; 4 months' pregnancy, 149; 5 to 6 months' pregnancy, 107; 7 to 8 months' pregnancy, 8.

CANCEROUS DEVELOPMENT IN THE UTERUS AFTER RADIATION THERAPY

There is no evidence to lead one to believe that uterine cancer occurring after radiation therapy is a serious

TABLE 3.—Patients Operated On After Radiation Therapy
(Tumor Size of Three Months' Pregnancy or Smaller)

Total number of cases.....17 or 2.4%	
Number of Cases	Findings and Indications
3	Ovarian cyst: size of tumor unchanged and pressure remained
3	Submucous fibroids: bleeding continued
3	Carcinoma of the fundus: bleeding later: 3 months, 1 year and 5 years after treatment
1	Carcinoma of cervix: developed 6 years after treatment
1	Intestinal obstruction: 3 years after treatment (tumor adherent to intestine)
2	Carcinoma of ovary: irregular bleeding continued
4	Tumors remaining without relief of pressure symptoms

consideration. This occurred in only 4 cases in our series (table 3). This number is probably well within the normal limits of carcinoma in an age group comparable to our series of patients, three fourths of whom are in the "cancer age." In this group, in 3 patients carcinoma of the fundus developed three months, one year and five years respectively after radiation therapy, and one patient suffered carcinoma of the cervix six years after treatment. A larger percentage of other types of carcinoma than carcinoma of the uterus occurred. In 6 patients there developed later carcinoma of the breast, in 1, of the kidney, and in 1, of the stomach. Norris and Behney⁷ found that in only

7 out of 485 patients previously treated by irradiation did carcinoma develop. Macfarlane¹³ observed that the incidence of carcinoma was only 0.35 per cent in 3,890 patients treated by irradiation in German clinics, whereas cancer may occur normally in as high as 5 per cent of women in the "cancer age." Sarcomatous degeneration is very rare. In 112 patients with large tumors Corscaden¹¹ found no late sarcomatous degeneration. Pfahler¹⁴ has even suggested that irradiation may afford a distinct protection against later development of cancer in the uterus. It is well known that

TABLE 4.—Patients Operated On After Radiation Therapy
(Tumor Size of 4 Months' Pregnancy or Larger)

Total number of cases.....11 or 4.8%	
Number of Cases	Findings and Indications
7	Symptoms of pressure or bleeding not relieved
1	Ovarian cyst: masses increased in size
1	Dermoid cyst: large mass removed
2	Degeneration (inflammatory) of fibroid mass occurred

carcinoma occasionally occurs in a cervical stump after supravaginal hysterectomy (2 per cent in Polak's series and 0.27 per cent in Hochman's series¹⁵). From our experience and from available data there is little reason to believe that cancer is more likely to develop in the uterus remaining after radiation therapy than in the remaining cervical stump after hysterectomy or in the normal uterus of any woman in the "cancer age."

Tables 3 and 4 show the cases in which operation was later performed, together with indications for operation and the findings. It can be seen that an incorrect diagnosis was the reason for the majority of failures. Fortunately the group is small. In my entire series of 986 cases operation was necessary in only 2.8 per cent.

SUMMARY

1. An analysis was made of 986 patients with uterine fibromyoma treated by radiation therapy between 1927 and 1937, with a follow-up period of from two and one-half to twelve and one-half years.

2. Correct diagnosis should be established before radiation treatment is commenced; if doubt exists as to diagnosis, operation is the treatment of choice.

3. Some contraindications to radiation treatment of uterine fibroid tumors are definite and should be followed; others are possibly too rigid to be exactly substantiated, and patients for radiation therapy are probably being selected too conservatively.

4. The average age of our group is 42.5 years, approximately 75 per cent of the patients being over 40 and, therefore, in or near the menopausal age. We believe that irradiation menopause is no more troublesome than normal menopause. Sexual function is not destroyed.

5. Preexisting pelvic inflammation is not a justifiable contraindication to radiation therapy. Acute pelvic inflammation after irradiation occurred in only 1 patient in our series.

6. In only 4 patients (0.4 per cent) did cancer of the uterus develop after radiation therapy. A remaining uterus or residual mass is no more likely to become cancerous than a normal uterus in a woman of the "cancer age."

13. Macfarlane, Catharine: *Am. J. Obst. & Gynec.* 23:108 (Jan.) 1932.

14. Pfahler, G. E.: *Am. J. Roentgenol.* 31: 51 (Jan.) 1934.

15. Polak and Hochman, cited by Danforth, W. C.: *Am. J. Obst. & Gynec.* 28: 409 (Sept.) 1934.

7. Inflammatory degeneration of large fibroid tumors occurred in 2 patients. In both cases, operation was later carried out successfully.

8. In tumors the size of a 3 months pregnancy or smaller (722 cases), there was a reduction of the uterus to normal in 84.3 per cent and to normal or only slightly enlarged (less than twice normal) size in 93.5 per cent. Only 2.4 per cent of patients with these tumors were later operated on.

9. In patients with tumors the size of a 4 months pregnancy or larger (264 cases) there was a reduction of the uterus to normal in 36.7 per cent and to normal or slightly enlarged (less than twice normal size) in 52.7 per cent. Only 4.2 per cent of this group were later operated on. In tumors of this size roentgen rays alone, preceded by curettage, are the most satisfactory method of radiation therapy.

10. Careful selection of cases is the most important single factor contributing to the success of radiation therapy for uterine fibromyoma.

ABSTRACT OF DISCUSSION

DR. WILLIAM P. HEALY, New York: I should like to commend this paper to all surgeons and gynecologists. It represents an unbiased analysis of a large enough series of cases to indicate what can be done to cure nonmalignant tumors of the uterus in a conservative manner, protecting patients for whom the risk of major surgery may be very grave. There was no mortality in this series of cases. The size of the tumors included is interesting. Some of them were as large as an eight months pregnancy. I endorse the author's statement regarding the diagnosis of the tumor mass. It is interesting that in his report of 986 cases treated by irradiation there was only one case in which some inflammatory disturbance seemed to result from the treatment. We may therefore say that in the hands of competent therapists irradiation may be carried out safely without fear of a complicating inflammatory disturbance. In only 5 per cent of the cases was radium alone the therapeutic agent. In the remaining 95 per cent of the cases, either roentgen rays alone or roentgen rays in combination with radium were used. Actually, 65.5 per cent of the patients were treated with radium plus roentgen rays. My feeling has been that, if the tumor is the size of a three months gestation or larger, roentgen therapy should be combined with the introduction of radium into the uterus. Diagnostic curettage is essential before subjecting the patient to any other form of therapy, because we must rule out a possible cancer in the cervix or corpus. Severe bleeding is best controlled with radium and curettage plus roentgen rays. In the larger tumors roentgen rays are necessary because radium alone will not bring about castration, and if we do not establish castration we shall not terminate the growth of the tumor mass. I would not recommend irradiation for myomatous tumors after the menopause despite the good results obtained in this series of cases, because cancer of the corpus is a common lesion after the menopause, and 38 per cent of my patients with cancer of the corpus have had coincidental myomatous tumors in the uterus. The risk of an error in diagnosis is very grave.

DR. CHANNING W. BARRETT, Chicago: We have heard from the Far West, from the Far East. I ask the privilege of the floor for fear, if the momentum gets started, you will not know there is such a thing as surgery for fibroids of the uterus. Some twenty-nine years ago, I remember a man rushed into the meeting of the gynecologic section at Washington and asked the privilege of the floor; seemingly he could not wait. He said "I hold in my hand a capsule that is going to change gynecology entirely. There will practically be no more operating for fibroids of the uterus." He acted as though anxious to get back and get that capsule working for fear some patient might not receive its benefits. I won-

dered at the time how much of that was overoptimism. A few years later Gauss of Germany said "I have something that does away with surgery for fibroids of the uterus," and men went over there to see Gauss and his work. They came back and equipped themselves. A good many of them have discarded it. Some of them read papers on their work with fibroids treated with roentgen rays, and now they have discarded them and have no more use for them except in rare cases. There are indications for radium and roentgen rays, and there certainly are indications for surgery. What does one want in this condition? A live patient, certainly: a woman with all her functions left that can be left. If the uterus can be saved, we want to save it. If we can save the ovaries and take out the uterus, we want to save the ovaries, for in them is the estrogenic function which keeps her a woman, the feminizing function. And now we think of irradiation. Is it such a benign thing? It is the most radical thing you can do to a woman; it practically takes out her ovaries and her uterus. There is no conservatism there, and it leaves the fibroid set to degenerate. Degeneration is a crying evil of fibroids and irradiation increases it. What are the real indications for treatment with radium? A woman who is near the menopause who has a small fibroid, bleeding but with no other symptoms, no degeneration and no complications. One cannot treat a woman before the age of 40 with this and do justice to her, because irradiation will destroy her child-bearing and ovarian function. If there is a small fibroid present that is giving symptoms, the most conservative thing one can do to the patient is to take out the small fibroid surgically.

DR. ARTHUR H. CURTIS, Chicago: I am rather in accord with the sense of Dr. Barrett's remarks. With added years I find more and more instances in which an apparently simple case of uterine fibroids turns out to be a malignant growth or an ovarian tumor or an endometriosis which would be better treated by surgery than with radiation. I believe this whole problem can be summarized as it is seen by gynecologists throughout America whose opinion, experience and advice we would wish to follow by saying that radiotherapy in these cases is indicated chiefly for women who are at or near the menopause, who have a bleeding tumor of a size not exceeding the uterus of a three or three and one-half months pregnancy; when radiotherapy is given there should always be a preliminary diagnostic curettage.

DR. WILLIAM E. COSTOLOW, Los Angeles: Dr. Healy mentioned the treatment of tumors after the menopause. There was only one case in the series in which this occurred, and the report is given in the paper. This case was cited to indicate that possibly some of the effects of irradiation may be from direct action of the rays on the tumor cells instead of all the effect being due to the action on the ovaries. I presented the results in a large series of cases, the majority having been selected especially for radiation therapy by surgeons and gynecologists, but I did not advocate irradiation for all fibroids. I mentioned that one surgeon in our community had sent me over 200 cases of fibromyoma. Certainly he did not refer all of his fibroid cases for radiation therapy but selected those for which he felt the conservative type of therapy was indicated. Time does not permit me to reply to all the arguments which Dr. Barrett has presented. However, if he will carefully read the paper I have just presented he will there find my answers to most of his contentions. I agree with Dr. Curtis in his remarks about the treatment of young women and very large tumors. As I pointed out in the paper, 75 per cent of the patients were past 40 and in the menopause age, the average age being 42.5 years. The small tumors are the ones which should be selected for radiation therapy; the large tumors frequently cause the radiologist to get into difficulty. Dr. Curtis mentioned the danger of malignancy occurring later if the uterus is not removed. As brought out in my presentation, this occurrence has been less than the normal incidence of uterine cancer, for in 1,009 cases, 986 of which were followed from two and one-half to twelve and one-half years, cancer of the uterus developed later in only 4 cases (0.4 per cent).

THE BODY ECONOMY OF VITAMIN C
IN HEALTH AND DISEASE

WITH SPECIAL STUDIES IN TUBERCULOSIS

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During the past generation most of the diseases due to a deficiency of accessory food factors have been brought under control, and within the last decade many of the active principles concerned have yielded the secrets of their chemical structure. Not the least of these is the antiscorbutic substance, or "water soluble" vitamin C, a principle known to exist in limes and lemons for over a hundred years and recently found in abundance also in a large number of fruits and vegetables and in animal tissues.

As healing in tuberculosis is characterized largely by the formation of connective tissue, and the latter, according to Wolbach and his associates,¹ is formed by the action of vitamin C on fibroblasts, it does not seem unreasonable to suspect that a vitamin C deficiency may be one of the causes of unfavorable trends in tuberculosis, if it does not actually contribute to exacerbations of the disease. By the same line of reasoning, a replenishment of a deficiency of vitamin C, not to mention its administration in excess, may help at least to change the disease from an unfavorable course to a more favorable one.

With these possibilities in mind, a plan of study of the problem was undertaken which involved many experiments on the economy of vitamin C in health and disease in addition to extensive therapeutic experiments made in a large series of cases of pulmonary tuberculosis.

PREVIOUS WORK WITH VITAMIN C IN
TUBERCULOSIS

The report to follow represents only a summary of this combined study. A preliminary phase of the work has already been reported² on the results of blood examination during the early period of treatment. A slight hematinic value of vitamin C was found to exist after the beginning of treatment and to persist for the

first few months. Although experimental studies³ show that vitamin C deficiency enhances the development of tuberculosis in guinea pigs, reports in the literature with regard to therapeutic benefits of vitamin C on tuberculosis are not convincing. Petter⁴ reports favorably in a series of children, most of whom had surgical or lymph node tuberculosis. He gave the ascorbic acid in a malted milk mixture, without any controls. Hasselbach⁵ made an extensive study of the therapeutic value of ascorbic acid on 70 patients with various types of tuberculosis. He especially recommends its use for patients with a tendency to small seeping hemorrhages. Unfortunately, his study was complicated by a simultaneous administration of calcium. He reported that patients with a good prognosis and with no deficiency but stationary in their disease course were benefited. The effect in such cases is reputed to be that of a general tonic. If there is a measurable deficiency, the effect of vitamin C is more obvious. Finally, he combines it with gold therapy, especially when there is a tendency for hemorrhages to develop. Like many others, Hasselbach did not report controls. Sande⁶ also recommended its use with gold therapy to reduce the tendency to form hemorrhages.

Heise, Martin and Schwartz⁷ found that there was a greater decrease in the sedimentation of red blood cells in treated patients over controls, but that there was no noticeable clinical improvement after treatment with vitamin C.

Sebok and Pretzai⁸ state that the long continued fever and increased metabolism in tuberculosis causes a depletion in the vitamin C reserve, but that in 20 cases only 2 could be found with true hypovitaminosis. The extreme deficiency is usually from 3 to 4 Gm. The same authors also report that ascorbic acid was given with good results in pulmonary hemorrhages. For a rapid removal of the deficiency large doses of ascorbic acid are given, but lemon juice is used to maintain the normal level after it approaches this level.

Trautwein⁹ found that his febrile patients had a vitamin C deficiency of from 1,800 to 3,600 mg., for which he gave from 150 to 200 mg. a day, injected intravenously to restore the level to normal. After such treatment a decided improvement was indicated by a gain in weight, fall of temperature, decrease in red cell sedimentation rate and a favorable trend in the blood pictures. Liver function improved as the result of a more favorable effect on the storage of glycogen. Bauer and Vorwerk,¹⁰ however, treated a series of patients and concluded that a "final judgment of the therapeutic value of vitamin C in tuberculosis cannot yet be passed."

From the Research Department of the City of Chicago Municipal Tuberculosis Sanitarium, Dr. Frederick Tice, president, Board of Directors (Dr. Sweany) and the Department of Physiology, University of Chicago, Dr. A. J. Carlson, chairman (Dr. Clancy, Dr. Radford and Miss Hunter).

Read before the Section on Pathology and Physiology at the Ninety-First Annual Session of the American Medical Association, New York, June 14, 1940.

Dr. Eugene deSavitch was largely responsible for suggesting this study and also for obtaining financial assistance from the California Fruit Growers Exchange. Generous subsidies were received from the California Fruit Growers Exchange. Mr. A. J. Lorenz not only helped to negotiate the subsidies but assisted with many technical details of analysis. Dr. Frederick Tice cooperated in carrying out the work at the Chicago Municipal Tuberculosis Sanitarium. Dr. A. J. Carlson gave sound advice. Mr. Charles Steinmetz assisted with the chemical analyses.

1. Wolbach, S. B., and Howe, P. R.: Intercellular Substances in Experimental Scorbuts, *Arch. Path.* 1:1 (Jan.) 1926. Wolbach, S. B.: Controlled Formation of Collagen and Reticulum: Study of Source of Intercellular Substance in Recovery from Experimental Scorbuts, *Am. J. Path.* (supp.) 9:689, 1933; Pathologic Changes Resulting from Vitamin Deficiency, *J. A. M. A.* 108:7 (Jan. 2) 1937. Menkin, Valy; Wolbach, S. B., and Menkin, M. F.: Formation of Intercellular Substance by Administration of Ascorbic Acid (Vitamin C) in Experimental Scorbuts, *Am. J. Path.* 10:569 (Sept.) 1934.

2. Radford, Molly; de Savitsch, E. C., and Sweany, H. C.: Blood Changes Following Continuous Daily Administration of Vitamin C and Orange Juice to Tuberculous Patients, *Am. Rev. Tuberc.* 35:784 (June) 1937.

3. Grant, A. H.: Effects of Rachitic Diets on Experimental Tuberculosis, *Am. Rev. Tuberc.* 21:115 (Jan.) 1930. Höjer, J. A.: Scurvy, *Acta paediat.* (supp.) 3:8, 1924. Heymann, B.: Experiments on Guinea Pigs on Relations Between Scurvy and Chronic Tuberculosis, *Klin. Wchnschr.* 5:59 (Jan. 8) 1926. Leichtentritt, B.: Accessory Nutrients and Bacterial Growth, *Monatschr. f. Kinderh.* 22:375 (Nov.) 1921.

Zilva, S. S.: The Behavior of L-Ascorbic Acid and Chemical Compounds in the Animal Body: Antiscorbutic Activity in Relation to Retention by Organism, *Biochem. J.* 29:1612, 1935. Greene, Meridian R.: Steiner, Morris, and Kramer, Benjamin.: Role of Chronic Vitamin C Deficiency in the Pathogenesis of Tuberculosis in the Guinea Pig, *Am. Rev. Tuberc.* 22:585 (May) 1936. de Savitsch, Eugene; Stewart, J. D.; Hanson, Louise, and Walsh, E. N.: Influence of Orange Juice on Experimental Tuberculosis in Guinea Pigs, *Nat. Tuberc. A. Tr.* 30:130, 1934.

4. Petter, C. K.: Vitamin C and Tuberculosis, *Journal-Lancet* 57:221 (May) 1937.

5. Hasselbach, F.: Role of Vitamins in Therapy of Tuberculosis, *Klin. Wchnschr.* 16:472, 1937.

6. Sande, H.: Gold Therapy and Vitamin C, *Klin. Wchnschr.* 17:1745 (Dec. 10) 1938.

7. Heise, F. H.; Martin, G. J., and Schwartz, Spencer: The Influence of the Administration of Vitamin C on Blood Sedimentation and Sensitivity to Tuberculin, *Brit. J. Tuberc.* 31:23 (Jan.) 1937.

8. Sebok and Pretzai: Vitamin C Deficiency in Tuberculosis, *Tuberculosis*, 1937, no. 12.

9. Trautwein, Herbert: Cevitamic Acid Therapy of Pulmonary Tuberculosis, *Beitr. z. Klin. d. Tuberk.* 91:411, 1938.

10. Bauer, George, and Vorwerk, Wolfgang: Vitamin C Deficiency in Pulmonary Tuberculosis, *Beitr. z. Klin. d. Tuberk.* 91:262, 1938.

Its action, if any exists, is not specific but improves the general conditions.

In order more completely to understand the role of vitamin C in tuberculosis, it seemed desirable to know many facts concerning its economy in health and disease.

THE NORMAL DAILY REQUIREMENTS OF VITAMIN C

Most of the earlier studies devoted to the determination of the daily requirement of vitamin C were based on a quantity required to prevent gross clinical symptoms. According to the work of Harris and his co-workers¹¹ from 25 to 35 mg. is the minimum amount for normal persons. Most workers, however, claim that from 55 to 60 mg. a day is more nearly the optimum quantity for a good state of health, although much less may prevent scurvy. Van Eekelen's¹² figure of 0.84 mg. and Heinemann's¹³ of 0.85 mg. per kilo-

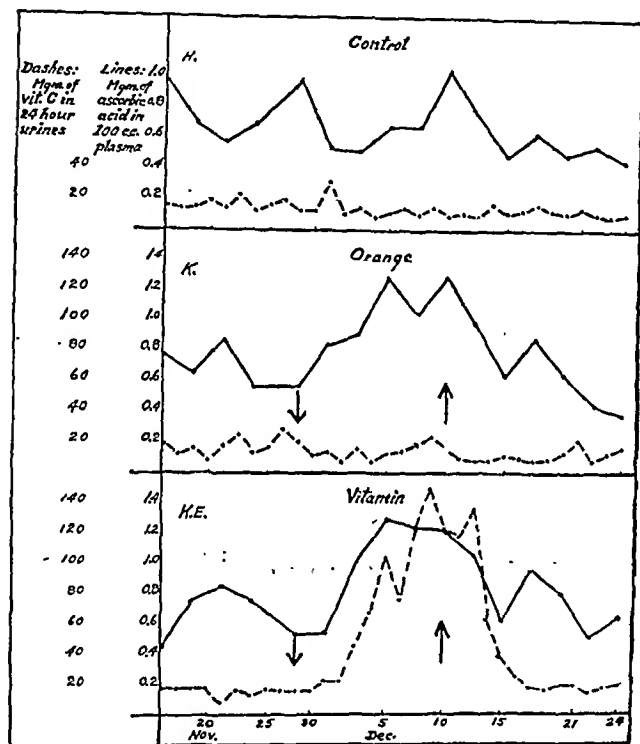


Chart 1.—Course in three representative cases showing one control (H). Note that the level in the urine fell from about 15 to 11 mg. in twenty-four hours and the blood fell from 1.0 to 0.6 mg. One of the orange group (K) failed to saturate after the administration of 2,750 mg. extra ascorbic acid. The blood curve rose promptly but soon fell when the ascorbic acid was stopped. The urine curve did not rise at all. One subject received ascorbic acid (vitamin) who showed nearly normal saturation (K. E.).

gram, amounting to about 60 mg. a day, are accepted as the optimum minimum by most experienced workers. The low level recommended by Harris (25 to 35 mg.) may be considered as an indispensable minimum to prevent the first sign of scurvy, while the higher level (50 to 60 mg.) is more nearly the optimum to maintain a good state of health. It is being recognized that patients do not need to be scorbutic to suffer from avitaminosis C. King¹⁴ says "The fact that there is a wide zone of vitamin C deficiency between scurvy and

optimum health, is of more interest in relation to human health than the problem of clinical scurvy." Rinehart and Mettier¹⁵ state that a depressed ascorbic acid level may be a "necessary background for rheumatic fever." Although the optimal daily requirement has been established, it furnishes only a starting point for a determination of the daily balance and a total quantity of vitamin C in the body.

THE DAILY REQUIREMENTS OF VITAMIN C IN TUBERCULOUS INDIVIDUALS

Heise and his associates,¹⁶ Trautwein,⁹ and others have recommended rather empirically the administration of from 150 to 200 mg. of vitamin C a day in severe tuberculosis to care for the requirements, but no accurate daily balance has yet been worked out.

To help solve this problem, many experiments were performed, some of which will be reported. Both early and advanced cases were studied. In the early cases there was but little unsaturation and they are omitted in this report. A summary of the results in the far advanced B and C cases, consisted of 30 cases arranged as follows: Five men and 5 women were studied for six weeks to establish a normal "base line" for our diet; another similar group was run for two weeks, then given orange juice containing approximately 250 mg. of ascorbic acid for a period of two weeks; and then for two weeks the blood and urine were allowed to return to the base line. The third similar group received 250 mg. of crystalline vitamin C in twenty-four hours in the second two weeks instead of the orange, to see if there were substances in oranges that behaved differently from the pure substance. The blood and urine observations of representative cases of each group are shown in chart 1.

Representative controls of both men and women revealed a blood content of around 0.8 mg. per hundred cubic centimeters of blood at the beginning of the experiment, which underwent a slow decrease on the general diet to about 0.5 mg. after about four weeks and a much slower drop after that. The corresponding urine curve ranges from about 18 mg. at the beginning to about 10 mg. in twenty-four hours during the same interval. The general diet proved to be inadequate in vitamin C because there is a slow fall of the blood and urine curves after the beginning of the experiment to levels that are reported by van Eekelen,¹² Harris¹⁷ and others to represent unsaturation.

The orange and vitamin blood curves were generally sufficiently alike to describe together. There was a slight drop at first from about 1.0 to 0.6 mg. per hundred cubic centimeters of blood. After the beginning of the administration of the vitamin-containing drinks the blood curve rose sharply for about four days to about 1.5 mg. and remained at this level until the treatment was stopped. The curve then began to return toward the normal, at first quickly, then slowly, over a period of ten to twelve days.

In the majority of cases the urine curves began to rise from the base line about four to six days after the rise in the blood curve, suggesting that there was from 750 to 1,250 mg. of unsaturation if no allowance was

15. Rinehart, J. F., and Mettier, S. R.: Partial Vitamin C Deficiency and Its Relation to Rheumatism, *Am. J. Path.* 9: 952 (Nov.) 1933.

16. Martin, G. J., and Heise, F. H.: Vitamin C Nutrition in Pulmonary Tuberculosis, *Am. J. Digest. Dis. & Nutrition* 4: 368 (May) 1937.

17. Harris, L. J., and Ray, S. N.: Diagnosis of Vitamin C Subnutrition by Urine Analysis, with Note on Antiscorbutic Value of Human Milk, *Lancet* 1: 71 (Jan. 12) 1935. Abbasy, M. A.; Harris, L. J.; Ray, S. N., and Marrack, J. R.: Diagnosis of Vitamin C Subnutrition by Urine Analysis: Quantitative Data; Experiments on Control Subjects, *ibid.* 2: 1399 (Dec. 12) 1935.

11. Harris, Leslie J.; Abbasy, M. A.; Yudkin, John, and Kelly, Simon: Vitamins in Human Nutrition; Vitamin C Reserves of Subjects of Voluntary Hospital Class, *Lancet* 1: 1488 (June 27) 1936.

12. van Eekelen, Marie: On the Amount of Ascorbic Acid in Blood and Urine, *Biochem. J.* 30: 2291 (Dec.) 1936.

13. Heinemann, Martin: On Relation Between Diet and Urinary Output of Thiosulfate and Ascorbic Acid: Human Requirements for Vitamin C, *Biochem. J.* 30: 2299, 1936.

14. King, C. G.: Vitamin C: Ascorbic Acid, *Physiol. Rev.* 16: 238 (April) 1936.

made for any destruction of the vitamin C. The quantity mounted sharply to from 140 to 220 mg. and then "leveled off," forming a few peaks, and decreased abruptly from two to four days after the treatment was stopped. It was near the base line in another four days. The high level reached is from 60 to 150 mg. less than the total intake.

These conditions prevailed among 6 women and 3 men. Two other cases showed irregular curves and a slight lag before appearing in the urine in from six to eight days (from 1,500 to 2,000 mg. unsaturation). Of 2 men the kidney threshold was not reached until eight and ten days respectively (from 2,000 to 2,500 mg. unsaturation), when a slight amount appeared in the urine. Two subjects, 1 man and 1 woman, showed no increase at all in the urine, indicating that they were not saturated enough to spill vitamin C in the urine even after receiving 250 mg. a day of extra ascorbic acid for eleven days (2,750 mg.). The blood content rose in all cases to the usual level, which proved that the ascorbic acid was not destroyed in the gastrointestinal tract.

Over and above the low intake in the general diet the rate of unsaturation seemed to vary roughly with the acuteness and extent of the disease. Two subjects became almost completely unsaturated in eleven days. Judging from van Eekelen's work,¹² the unsaturation in these cases on a diet containing 31 mg. of ascorbic acid occurred in about one-fourth the time it took to unsaturate normal human beings on a vitamin C free diet.

Similar conclusions have been shown by Heise and Martin,¹⁶ Trautwein⁹ and others.

UNSATURATION DUE TO LACK OF INTAKE ASSOCIATED WITH CERTAIN TUBERCULOUS PATIENTS

Another study was undertaken in certain complications and associated diseases in which a vitamin C deficiency might be expected as the result of a lack of intake in addition to the activity of the disease. In addition, it was desirable to remove the objection concerning the destruction of vitamin C in the gastrointestinal tract following administration by mouth.

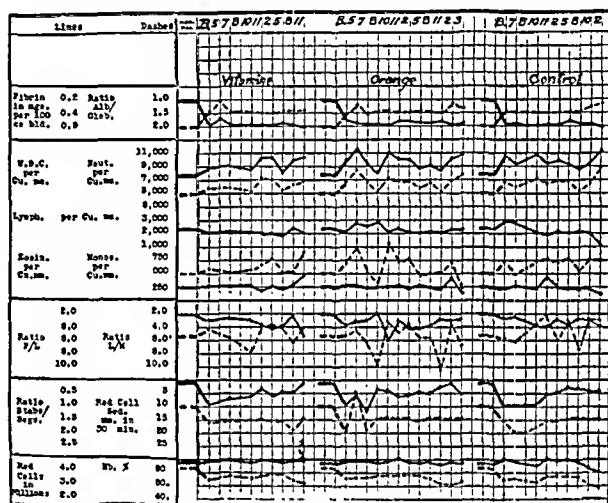
A rapid and direct method of testing unsaturation recommended by Barron¹⁸ was used, so that the status of a patient at any time could be ascertained with reasonable certainty. Instead of using sodium ascorbate, however, 500 mg. of ethyl-amine-ascorbate (cenolate-Abbott) was injected slowly intravenously and the urine tested after six hours for total vitamin C, after the method of Goldsmith and Ellinger.¹⁹ According to Barron's method, a recovery of less than 10 per cent in twenty-four hours represents unsaturation. Goldsmith and Ellinger found that about 60 per cent of the total injected is eliminated within six hours. Wright and his associates²⁰ have contributed the added information that the elimination is much slower in nephritis with retention. If 5 per cent or more, therefore, is eliminated within six hours and the patients are found to be free from nephritis, there should be no detrimental unsaturation.

The results revealed that nearly 70 per cent of the series selected were partly or wholly unsaturated. Of 26 subjects, 3 were completely unsaturated (below

5 per cent recovery), 8 were poorly saturated (6 to 15 per cent recovery), 7 partly saturated (16 to 30 per cent recovery) and 8 "adequately" saturated (30 to 68 per cent recovery).

The unsaturated or poorly saturated subjects were all on a poor vitamin C intake. One alcoholic addict with terminal tuberculosis was absolutely unsaturated. The patients on "nonresidue" and "general" diets for enteritis were also low. One peptic ulcer patient was unsaturated, another was low, but two others were surprisingly high.

A group of 15 critically ill patients was similarly studied with even more striking results, because in the last thirty days of life there is frequently little or no food eaten. Two subjects ran regularly between 0.3 and 0.4 mg. per hundred cubic centimeters of plasma with the urine running lower than 8 mg. in twenty-four hours. One of these patients was studied on till death, after which the organs were analyzed for vitamin C. Seven days before death she was given 500 mg. of ethyl-amine-ascorbate intravenously on three successive days without any appreciable rise of vitamin C in the



scurvy, multiplied by the daily elimination. It has been found to require about ninety days in man to reach the scorvic state. Assuming, therefore, that from 10 to 20 mg. a day is eliminated in the urine and a comparable quantity eliminated in the sweat and feces, there would be a loss of between 1,800 and 3,600 mg., an amount consistent with the estimate of Trautwein⁹ and of Sebok and Preztai.⁸

Another method is just the reverse of the preceding, viz., the amount necessary to saturate an unsaturated individual. The work of van Eekelen¹² reveals that in a decidedly unsaturated person it requires from 2 to 4 Gm. of vitamin C before any appreciable amount appears in the urine.

THE RESULTS OF ANALYSIS OF ORGANS FOR VITAMIN C

Although no record of a complete assay of the vitamin C of the whole body has been made, the content of separate organs has been determined by Yamagami²¹ and Birkhaug²² in guinea pigs and by Yavorsky, Almaden and King²³ in both guinea pigs and organs from a large number of human autopsies. In these reports the adrenals have been shown to possess the highest amount of ascorbic acid (about 0.5 mg. per gram of tissue). The larger organs (brain, liver, lungs,

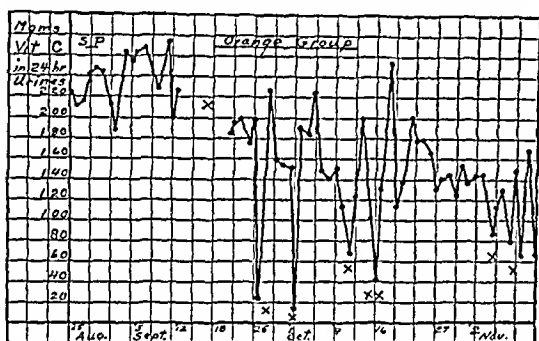


Chart 3.—A midsection of a curve of one of the vitamin C cases of the second mass experiment. Note that the curve on the left has as high as 250 mg. elimination a day in the urine, but it drops to 140 mg. near the end. The intake during that time was at least 300 mg. a day. The crosses indicate the days on which treatment was not given.

spleen, kidneys) are lower in content but seem to be more important depots of the body because of their size. These organs have from 0.1 to 0.4 mg. per gram of tissue.

By availing ourselves of the standard table of tissue weights of Vierordt²⁴ it may be crudely estimated from the reported studies on vitamin C in organs that there are from 3 to 6 Gm. of total ascorbic acid in the normal young adult human body.

AN ATTEMPT TO DETERMINE THE TOTAL VITAMIN C IN THE BODY

In order to test these rough figures for "saturated" persons and see if the total amount of vitamin C could be found in different diseases, especially tuberculosis, analyses were performed on the organs and tissues of 32 bodies coming to autopsy. Because of a lack of

space, histories of the patients and detailed analyses are omitted. All but 1 case (a monocytic leukemia) presented some form of tuberculosis. Two of the cases showed diabetes, in one of which also there was myocarditis, and some showed amyloidosis as well as the tuberculosis. One patient died suddenly in a pulmonary hemorrhage, after the disease was nearly arrested.

Bessey's²⁵ method for tissue analysis was used, but care was taken to keep the p_H below 1.5. Over that figure a complete recovery was not possible in certain tissues, as liver and spleen. The difficulty was overcome by using 7 per cent metaphosphoric acid instead of the 3 per cent advocated in the original method. Duplicates were run on many specimens by Bessey and King's²⁶ trichloroacetic method. The "tough" tissues, especially skin, were frozen in liquid nitrogen and pulverized according to the method of Graeser, Ginsburg and Friedmann.²⁷ Duplicate analyses were run on most specimens. The results are arranged roughly in the order of the tissue content of vitamin C.

The "vital tissues" were found to contain the most vitamin C. Hypophysis, adrenal, gonads, pancreas, spleen, liver and brain contain the substance, ranging from about 50 to 90 mg. in the first three to about 20 to 40 mg. per hundred grams of tissue in the last four. The largest depots of the body, however, are muscle and fat, with bone and skin also playing a role. In advanced disease these tissues lose nearly all their reserve and the bulk of vitamin C is found in the brain and liver, although the more vital cells still have the highest concentration. By using Vierordt's²⁴ standard tables of tissue weights we estimated the content of the bones and muscles. The content of the skin was determined by a special method to be reported later, based on Benedict's tables of the body area. Other tissues were estimated directly or by difference.

The results indicate that advanced active tuberculosis is devastating on the vitamin C reserve, reducing the total quantity to less than 300 mg. even on a fair vitamin C intake. On the other hand in a fatal case of monocytic leukemia there was 2,725 mg. (70 per cent saturation) at death. Another well nourished patient with quiescent fibroid tuberculosis with mild diabetes, who was on a high vitamin C diet, had 3,670 mg., or about 5 mg. per hundred grams of body tissue. These last figures were used arbitrarily as a saturation limit. The other cases ranged in between the two extremes and varied roughly with the intake of vitamin C.

THE EFFECT OF VITAMIN C ON THE DISEASE TUBERCULOSIS

The preceding preliminary studies, as well as the reports of others, justified a trial of vitamin C on various types of tuberculous patients. Although most authors agree that there is an increased requirement, there is no uniform opinion regarding the therapeutic value of vitamin C in tuberculosis. When viewed critically there are few therapeutic attempts that are free from objection on one point or another. Most of the reports suffer from a lack of controls, which is serious in a disease in which, according to Braeuning²⁸ about

21. Yamagami, Shigeru; Nomura, Kiyoshi, and Nishigaki, Meiji: Vitamin C of the Lung in Experimental Tuberculosis, Kekkaku (Abstr. Sect.) 13:42 (Dec. 24) 1935.

22. Birkhaug, K. E.: Role of Vitamin C in Pathogenesis of Tuberculosis in Guinea Pigs: Daily Excretion of Vitamin C in Urine of *L*-Ascorbic Acid Treated and Control Tuberculous Animals; Vitamin C Content of Suprarenals of *L*-Ascorbic Acid Treated and Control Tuberculous Animals, Acta tuberc. Scandinav. 12:89, 1938.

23. Yavorsky, Martin; Almaden, Philip, and King, C. G.: The Vitamin C Content of Human Tissues, J. Biol. Chem. 106:525 (Sept.) 1934.

24. Vierordt, Herman: Anatomische, physiologische und physikalische Daten und Tabellen, ed. 3, Jena, Gustav Fischer, 1906.

25. Bessey, O. A.: Vitamin C: Methods of Assay and Dietary Sources, J. A. M. A. 111:1290 (Oct. 1) 1938.

26. Bessey, O. A., and King, C. G.: Distribution of Vitamin C in Plant and Animal Tissues, and Its Determination, J. Biol. Chem. 103:687 (Dec.) 1933.

27. Graeser, J. B.; Ginsburg, J. E., and Friedmann, T. E.: A Method for the Analysis of Tissues, J. Biol. Chem. 104:149 (Jan.) 1934.

28. Braeuning, H.: Studies of Series of Roentgenograms as Means of Determining Time of Onset of Tuberculosis in Adults, Ztschr. f. Tuberk. 64:416, 1932.

30 per cent heal spontaneously without any treatment whatever. Another objection to the work already reported is that with few exceptions the reports do not include enough cases to rule out the variability inherent in the disease.

SELECTION OF PATIENTS

In order to approach an ideal experimental result, the patients were carefully selected, grouped and evenly matched as to quality and quantity of the disease.

The first consideration was with regard to the natural status of the patient. This included age, sex, race, environment and constitutional factors, each of which was appraised numerically with arbitrary values and recorded on a special chart for that purpose.

Laboratory examinations, especially blood counts and chemistry, careful roentgenologic studies and clinical observations were recorded throughout the three successive mass experiments, one of which will be presented.

THE FIRST MASS THERAPEUTIC EXPERIMENT

The details of the selection were as follows: There was a group of 111 cases chosen, from which 102 were finally selected for the experiment and 98 actually used. These cases were divided into three groups as impartially as possible. First the patients were matched as closely as possible with respect to age, sex, and the various factors considered under the "natural handicap" including the many groups described before. From those nearest alike and having approximately the same "handicap," groups of 3 were chosen. Each group of 3 was arranged in three main columns according to the first letter of their names. Those having the highest letter of the alphabet were to receive daily, in addition to the general hospital diet, 500 cc. of a synthetic orange flavored preparation to which was added an amount of crystalline vitamin C equivalent to the amount of vitamin C in the same volume of fresh orange juice. Those next highest in the alphabet were to receive daily, in addition to the general hospital diet, 500 cc. of freshly prepared orange juice. Those having the lowest letter in the alphabet were to receive daily, in addition to the general hospital diet, 500 cc. of the synthetic orange flavored preparation without vitamin C. This was to constitute the control group.

The 102 patients were started on therapy in May 1935. In September 1935 it was necessary to add 17 patients to replace those who had died or been discharged from the sanatorium. Those who were thus rejected were patients who did not receive any treatment at all. Only 98 were finally carried into the experiment, of which 60 remained to the end. There were 34 controls in the beginning with 14 remaining to the end; 33 in the orange group, 23 of which remained to the end; and 31 in the vitamin group, with 23 remaining to the end. The heavy casualties in the control group before the experiments passed the six months period is significant.

Of the rejected cases, 11 for each of the orange and vitamin and 20 for the controls, 6, 5 and 6 respectively were rejected because of interference such as going home, the institution of some other treatment, death, or other events that caused a termination of the case before three months had elapsed. This type of "casualty" was about equal in all three groups.

The remaining cases of 5, 6 and 14 respectively were followed for more than three months. Most of them were discontinued before six months. A few were

carried longer, but because of some failure to get all the studies performed or some interference in the form of special diets they were rejected.

Of the 5 cases of the vitamin group, 2 were on the favorable side and 3 unfavorable, in 2 of which death occurred. Of the orange group there was one on the favorable side and 5 unfavorable, with three deaths. For the controls there were only 2 favorable against 12 unfavorable results, with seven deaths. Of the results on rejected cases of the three mass experiments, 51 per cent of the controls were unfavorable with 31 per cent deaths. The vitamin had 28 per cent unfavorable with 21 per cent deaths, and the orange group 31 per cent unfavorable with 21 per cent deaths.

The cases that were carried on into the experiment were then compared by every available means.

RESULTS OF TREATMENT

In analyzing the charts at the end of the experiment there is so much similarity of the three groups that they are practically interchangeable. While there was a greater number of cases in the orange and vitamin groups showing a favorable hematinic effect, as shown in the first report,² the average loss or gain was not sufficient to record by any laboratory means over the whole course of treatment.

An empirical method of calculation revealed also that there was little change roentgenologically between the composite figures of the three groups.

As to the clinical results, the weight gain or loss is the only factor that gives any precise information that can be tabulated. The patients remaining to the end who were not molested in some way by treatment or other interferences were compared in the table.

Of 23 patients remaining on orange, 10 (43.4 per cent) gained weight, 2 (8.7 per cent) were stationary and 11 (47.9 per cent) lost. In the vitamin group only 7 (30.4 per cent) gained; 9 (39.2 per cent) were stationary and 7 (30.4 per cent) lost. The controls had 4 (28.5 per cent) gain, 4 (28.5 per cent) stationary, and 6 (42.0 per cent) lost, respectively. The net result from this particular analysis reveals a similarity of all three groups.

THE SECOND MASS THERAPEUTIC EXPERIMENT

As stated previously, two more mass experiments were carried out in slightly earlier cases than the ones just described. In the second, there were 80 cases compared with 39 (12 controls, 13 orange and 14 vitamin) followed more than one year. There was no essential difference, however, in the final result. A sample chart of the second mass experiment is shown. The results may be interpreted as follows: In the controls the levels revealed saturation in most of the cases, but a few dropped to "unsaturation" levels. In most of the orange and vitamin groups there was a recovery in the urine of a maximum of about 200 mg. a day at the beginning, but the level usually dropped to about 150 mg. by six weeks. Counting 280 mg. a day intake with 20 mg. lost in sweat, feces and sputum, it leaves a consumption of from 60 to 150 mg. a day. A few very ill patients had a high value of only 150 mg. in the urine and a gradual drop to 120 or less as the winter came on, making a consumption of 110 mg. at the beginning and rising to 140 mg. at the end of the test period. This reveals that severe cases require approximately 150 mg. or more a day to care for their needs (chart 3).

A tremendous amount of research has been conducted to evaluate the relative effects of atmospheric environments on water balance or dehydration of the body. Whether one is treating patients for diseases or is managing workers, these statements hold true, since the heat loss is based on physical laws which have already been described.

As previously pointed out, extensive research has shown that definite physiologic reactions follow the effective temperature index rather than the dry bulb temperature. This fact should be important in the treatment of many human illnesses in which temperature derangement is encountered. As an example, Simpson⁶ has shown that induced fever therapy will give a rise in body temperature to 105 F. in from forty minutes to an hour with a dry bulb temperature ranging from 130 to 150 F. and a relative humidity from 35 to 50 per cent. However, Houghten, Ferderber and Gutberlet⁷ have shown that in a saturated atmosphere the

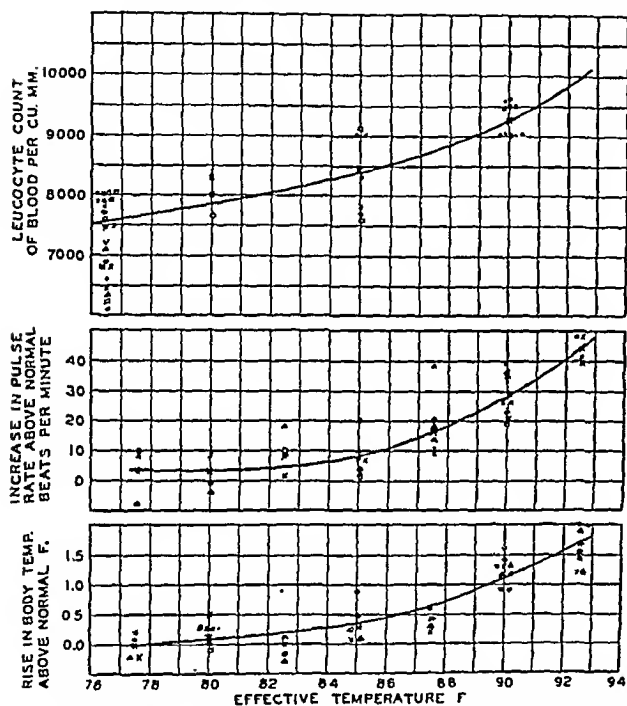


Chart 2.—Relation between the rise in body temperature, the increase in pulse rate, the change in the leukocyte count from normal during three hours' exposure and the effective temperature of the air condition.

same rise in body temperature will occur in about the same time with a dry bulb at approximately 113 F. There are no arguments offered here in favor of either high temperature and low humidity or relatively low temperature and high humidity in obtaining the desired end, but it should be obvious that with this wide difference in results, depending on the moisture content of the air, a greater appreciation of these facts should be of value in the field of medicine.

Research during recent years by us has also served to show very wide differences in the mode of heat losses depending on the moisture content of the air.⁸ In this connection we would point out that the human body

loses heat essentially by contact with the air; that is, the air in contact with the human body absorbs heat and moves away, allowing cooler air to come in contact with the body. This is known as sensible heat loss. At the same time, dry air in contact with the human body, particularly when it is bathed in perspiration, evaporates moisture from the surface and thereby removes heat equal to the latent heat of evaporation of perspiration removed, or 575 large calories per gram. This is recognized as latent heat loss.

A normal-sized man 68 inches tall (173 cm.), weighing 150 pounds (68 Kg.) seated at rest normally clothed dissipates about 100.8 large calories (400 British thermal units) of heat per hour without much variation for all temperatures above 60 to 70 F. The division of these calories between sensible and latent depends on the moisture content and the temperature of the atmosphere. For example, at 65 F. effective temperature, which is reasonably comfortable for a person normally clothed and seated at rest in winter, this person dissipates a total of 100.8 large calories per hour. About three fourths of this is sensible and one fourth latent, while for an effective temperature of 75 F., which is slightly warm for a summer conditioned space, approximately 67.5 per cent of the total heat is sensible and 32.5 per cent is latent. At 85 F. effective temperature, which represents a very warm but not unbearable condition, he loses the same amount of heat, of which 42.5 per cent is sensible and 57.5 per cent is latent. If the dry bulb temperature is equal to the body temperature, the entire amount of heat dissipated is latent. The foregoing values are subject to some variation, depending on the relative humidity of the air. This variation for most conditions is not great. A better division of these values is given by Houghten and others.⁹

From a practical standpoint this application may well be utilized in measuring the effects on workers in industry in which all gradations of the temperature range may occur. The physiologic effects of high effective temperatures can be well illustrated by the increases in pulse rates, elevations of body temperatures and, lastly, a rise in leukocyte count of the blood.¹⁰ Since we have shown that a rise in body temperature is a function of effective temperature, it is only natural that the pulse rate should follow the body rise. However, psychic stimuli definitely play a great part in changes in heart rate but can be disregarded after a period of adjustment to the hot environmental conditions. The change in leukocyte count may be more difficult to evaluate, since this observation was made incidental to the other data. Additional investigations by the authors show the rise in white cell count to be consistent in laboratory observations over the past two years, although no specific explanation is offered. Since much of this information was collected under conditions which might simulate certain unusual occupations, one could conclude that the physiologic changes may be caused by environment. It was observed in investigations on fever therapy by this department that frequent exposures to heat at short intervals produced a state of resistance to the heat itself and was accompanied by

6. Simpson, W. M.: Artificial Fever Therapy of Syphilis and Gonococcal Infections, *Brit. J. Ven. Dis.* 12:133 (July) 1936.

7. Houghten, F. C.; Ferderber, M. B., and Gutberlet, Carl: Fever Induced by Conditioned Air, *Tr. Am. Soc. Heat. & Ventil. Engin.* (Sec. Heating, Piping & Air Conditioning), February 1937.

8. Houghten, F. C.; Teague, W. W.; Miller, W. E., and Yant, W. P.: Thermal Exchanges Between the Human Body and Its Atmospheric Environment, *Am. J. Physiol.* 88: 386 (April) 1929; Thermal Exchanges Between the Bodies of Men Working and the Atmospheric Environment, *Am. J. Hyg.* 13: 415 (March) 1931.

9. Houghten, F. C.; Teague, W. W.; Miller, W. E., and Yant, W. P.: Heat and Moisture Loss from the Human Body and Its Relation to Air Conditioning Problems, *Tr. Am. Soc. Heat. & Ventil. Engin.* 35: 245, 1929; Heat and Moisture Losses from Men at Work and Their Application to Air Conditioning Problems, *ibid.* 37: 541, 1931.

10. Fleisher, W. L.; Stacey, A. E., Jr.; Houghten, F. C., and Ferderber, M. B.: Air Conditioning in Industry, *J. Am. Soc. Heat. & Ventil. Engin.* 45: (Jan.) 1939.

failure of leukocytosis at the same time.¹¹ While this holds true for certain chronic illnesses, a vague possibility exists that there is a connection between continued exposures to excessively hot atmospheres over a long period of time and resistance to infection.¹²

At an approximate effective temperature of 85 F., the changes in body temperature, pulse rate and leukocyte count become noticeable, so that an effective temperature between 92 and 94 F. the differences in these three physical readings from normal are rather extensive. It must be remembered that these changes occur in laboratory subjects performing light work standing whose metabolic output amounts to 76 calories per square meter per hour. One could conclude that, had these subjects been seated at rest, the physiologic changes would have been less significant or, had they been performing heavy work of about 150 calories per square meter per hour, the changes would have been greater. This is offered as a measure for evaluating the exposure time in new processes of manufacture, so that the medical managers have some definite conception of what changes occur in the body of the industrial worker.

We offer no definite point at which conditions may be considered unsafe, since this is purely experimental, and its application may be of some value in our vast industrial life¹³ (chart 2).

There is some indication that at different seasons of the year physiologic reactions may vary according to the same effective temperatures. In a recently published paper¹⁴ this is clearly indicated to be between 81 and 90 F. effective temperature; but in excessively hot atmospheres of approximately 92 F. effective temperature or higher the physiologic changes are the same, irrespective of the season of the year. We have called this circumstance "acclimatization," indicating that the physiologic responses become adjusted to environmental temperatures.

Since the use of air conditioning has been more critically evaluated, its application to human comfort will interest the physician irrespective of locality. It is desirable to know the optimum comfort in winter heating or summer cooling in different geographic locations, so that some conclusions could be drawn as to the proper conditions for comfortable living in certain regions.¹⁵ These desires are interpreted in chart 3, in which occupants of certain spaces indicated their wishes regarding the comfort or discomfort of the conditions, all of which was plotted against the effective temperature in each location.

A rather interesting outcome of these collected data was the choice of the proper effective temperature

to be used in an experimental operating and recovery room at the Elizabeth Steel Magee Hospital,¹⁶ associated with the University of Pittsburgh. Of the many theories that have been advanced regarding the differences between inside and outside temperatures, we felt that an average of the comfort requirements in various localities would furnish some idea of the proper conditions. An effective temperature between 67 and 70 F. was chosen and the variation from these conditions was so slight that 80 per cent of the operating room personnel voted "comfortable," which coincided with the choice of office workers in other portions of the country. Apparently the surgeons desired a slightly cooler environment, owing perhaps to working while standing, the type of effort involved, heavier clothing and possibly mental stress. On the other hand, the office worker is usually seated, performs lighter work and wears less clothing. This does not mean, however, that the environ-

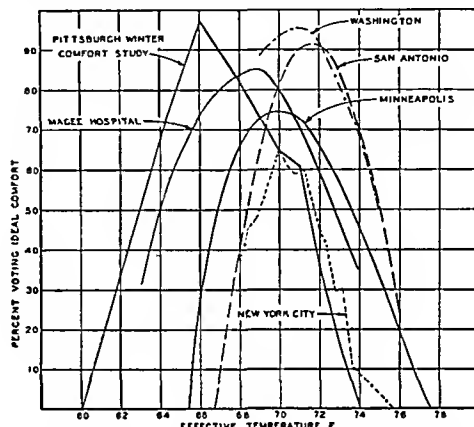


Chart 3.—Relation between effective temperature and percentage of persons indicating ideal comfort in various localities as indicated on graph.

ment of the office workers is comfortable for the surgeon, but it does furnish a basis for scientific investigation of what the optimum environmental conditions might be.

ABSTRACT OF DISCUSSION

DR. W. J. McCONNELL, New York: The authors have evaluated in the order of their importance the various physical factors of the air which determine in large measure the sensation of bodily comfort. Too much dependence cannot be placed on the dry bulb temperature. It is like reading the time by one hand of the clock. It gives considerable information but not complete information. In order to express similar sensations of comfort produced by thermally equivalent air conditions, the term "effective temperature index" was coined and need not be confusing if we remember first that effective temperature in reality is not a temperature at all, but merely a relative index of the temper of atmospheric conditions felt by the human body in response to the physical factors of the air. The scale is merely superimposed on the standard psychrometric chart. Second, we must consider that radiant heat is not included in the effective temperature. Where radiant heat sources prevail, they must be taken into consideration separately. Third, the index is based on saturation temperature; therefore the effective temperature index is usually lower than air temperature. Now, in order to improve that condition there is available a chart which has been revised on a 50 per cent relative humidity, so that the so-called comfort line is indicated by 70 rather than 66 and perhaps is better understandable by the majority of people who are accustomed to using the dry bulb temperature as an index for comfort.

16. Houghten, F. C., and Cook, W. L., Jr.: Air Conditioning Requirements of an Operating Room and Recovery Ward, *J. Am. Soc. Heat. & Ventil. Engin.* 45: (Jan.) 1939.

11. Report of the Second Year of Fever Therapy Research, Department of Industrial Hygiene, School of Medicine, University of Pittsburgh, 1939.

12. Ferderber, M. B.: The Effect of Heat on the Temperature-White Cell County Relationship of the Body, Department of Industrial Hygiene Publication, to be released.

13. Houghten, F. C.; Ferderber, M. B., and Rosenberg, A. A.: Physiological Effects of Hot Atmospheres, *Indust. Med. (Indust. Hyg. Sect.)* 9: 7-17 (Jan.) 1940.

14. Houghten, F. C.; Rosenberg, A. A., and Ferderber, M. B.: Seasonal Variation in Reactions to Hot Atmospheres, *J. Am. Soc. Heat. & Ventil. Engin.* 46: January 1940.

15. Newton, A. B.; Houghten, F. C.; Gutberlet, Carl, and Qualley, R. W.: Summer Cooling Requirements of Two Hundred and Seventy-Five Workers in an Air Conditioned Office, *J. Am. Soc. Heat. & Ventil. Engin.* 43: 758 (Dec.) 1937. Tasker, C.: Cooling Requirements for Summer Comfort Air Conditioning in Toronto, *ibid.* 44: 405 (June) 1938. Rummel, A. J.; Giesecke, F. E.; Badgett, W. H., and Moses, A. T.: Reactions of Office Workers to Air Conditioning in South Texas, *ibid.* 45: 323 (May) 1939. Houghten, F. C.; Gutberlet, Carl, and Rosenberg, A. A.: Summer Cooling Requirements in Washington, D. C., and Other Metropolitan Districts, *ibid.* 45: 387 (Sept.) 1939. McConnell, W. J., and Spiegelman, M.: Reactions of Seven Hundred and Forty-Five Clerks to Summer Air Conditioning, *ibid.* Sect. Heating, Piping & Air Conditioning 46: 317-322 (May) 1940.

LEUKOPENIA

A DISCUSSION OF ITS VARIOUS MODES OF PRODUCTION

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It has seemed to me that the average clinician spends little time in considering what physiologic mechanism may be at fault in patients who have leukopenia. One is prone to explain the condition on the basis of some abnormality in production of white blood cells by the hemopoietic tissue. While it is true that leukopenia is due in many instances to the failure of the blood-forming tissues to manufacture normal numbers of white blood cells, yet there are at least four other major mechanisms which may result in this condition. My purpose in making this presentation is to call attention to these additional conditions in the hope that all physicians may put more thought on leukopenia. With this in mind I present the following possibilities which I feel may take part in the development of leukopenia:

1. Diminished manufacture of white blood cells. This may be the result of (1) simple inhibition, (2) maturation arrest, (3) aplasia of the bone marrow and (4) infiltration of the bone marrow with foreign cells.
2. Increased elimination of white blood cells. Theoretically, this may occur when large quantities of cells are poured into an infected area such as an empyema or when large numbers of cells are lost through normal channels such as the gastrointestinal tract, the lungs, the spleen or the liver.
3. Increased rate of destruction in the peripheral blood due either to abnormal white blood cells or to abnormal substances in the blood channels which cause destruction of the white blood cells.
4. Redistribution of the white blood cells in the vascular channels, such as occurs with foreign proteins.
5. Redistribution of the white blood cells in the body as a whole, as is seen at times in leukopenic phases of leukemia.

DIMINISHED MANUFACTURE OF WHITE BLOOD CELLS

With regard to diminished manufacture of white blood cells, this may occur under the following conditions:

1. *Simple Inhibition.*—Such is thought to occur in many of the virus infections, typhoid, malaria and overwhelming infections. No satisfactory study has yet been made of these disorders in relation to the cause of leukopenia, and it is probable that other mechanisms, such as peripheral destruction, are at fault. The fact that a "shift to the left" is frequently present suggests that increased destruction or elimination may be factors also.

2. *Maturation Arrest.*—This is a term which was first proposed by Fitz-Hugh and Krumbhaar.¹ These investigators called attention to the fact that extreme leukopenia occurred at times in acute agranulocytosis of the Schultz type when aplasia of the granulocytic elements of the bone marrow was not present but, on the other hand, when myeloblasts or myelocytes or both were present in normal or increased numbers in

the bone marrow. An analogy was drawn between this situation and that existing in primary anemia in which large numbers of parent red blood cells were to be found in the bone marrow in the presence of few adult red blood cells in the peripheral blood. According to Fitz-Hugh and Krumbhaar,¹ the leukopenia in cases of acute agranulocytosis presenting normal numbers of parent white blood cells in the hemopoietic tissues was due to maturation arrest or failure of the white blood cell progenitors to mature into late myeloid forms. Plum,² in a discussion of this entire subject, has pointed out that in the majority of instances acute agranulocytosis is associated with aplasia of the granulocytic elements of the bone marrow. However, he has shown that in an appreciable number of instances this disease may occur in the presence of pathologic changes of the type reported by Fitz-Hugh and Krumbhaar.¹ The fact has been stressed that there is unanimity of opinion as to

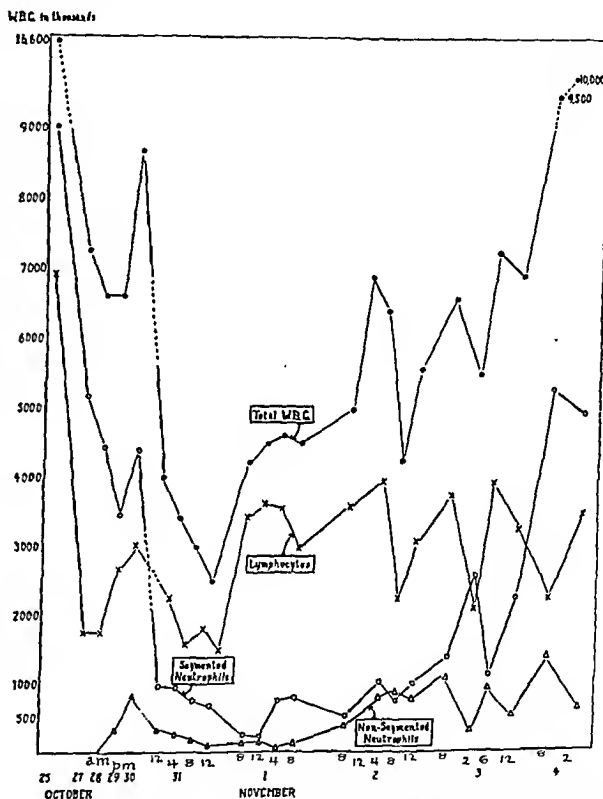


Fig. 1.—Variations in the white blood cells of a cat before the height of the disease, at the height of the disease and during the first days of recovery. Note the tremendous diminution in the neutrophils at the height of the disease and the increase in the stab forms just before the height of the disease and particularly during recovery. The lymphocytes are depressed, but not so markedly.

the absence of differentiation of the myeloid cells of the bone marrow in the active stages of the disease. According to Plum,² the differences in the condition of the bone marrow are to be explained by the different stages of the disease at which the bone marrow has been removed. He has postulated three stages of the disease as regards the bone marrow: one in which the bone marrow is poor in cells; another when the marrow is rich in cells or, in other words, when regeneration has begun but has not advanced to the stage of differentiation into late myeloid forms, and a third when the marrow picture is normal, which is to be found in patients who die from complications subsequent to

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From the Medical Department of the University of Rochester School of Medicine and Dentistry and the Strong Memorial and Rochester Municipal Hospitals.

1. Fitz-Hugh, Thomas, Jr., and Krumbhaar, E. B.: Myeloid Cell Hyperplasia of the Bone Marrow in Agranulocytic Angina, *Am. J. M. Sc.* 183: 104 (Jan.) 1932.

2. Plum, Preben: *Clinical and Experimental Investigations in Agranulocytosis with Special Reference to the Etiology*, London, H. K. Lewis & Company, Ltd., 1937.

hematologic recovery. Rohr³ had presented his observations previously which were consistent with Plum's ideas in this regard. My associates and I⁴ have shown

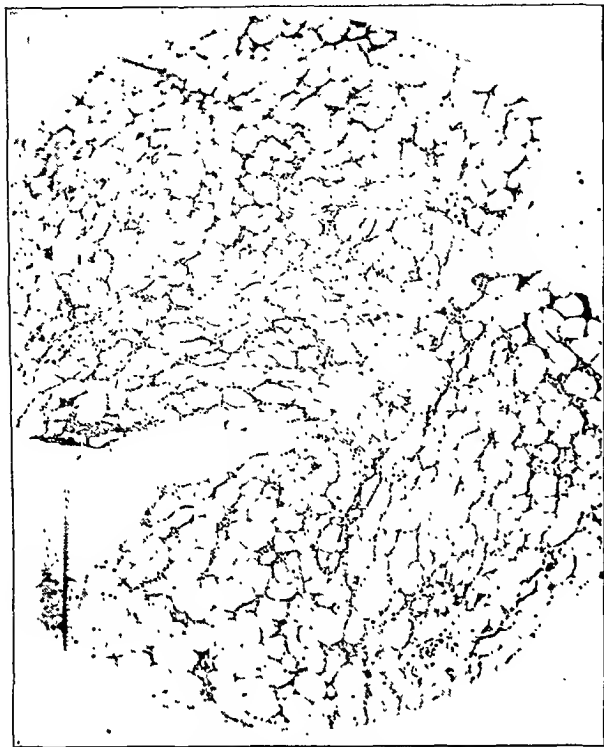


Fig. 2.—Section of bone marrow from femur of cat 279 at the height of the disease. Note the hypoplasia. Reduced from a photomicrograph with a magnification of 100 diameters.

recently that very rapid changes may occur in the bone marrow of cats with a disease which closely simulates the human disorder and to which we have given the name "infectious feline agranulocytosis." This disease was shown to be due to a virus or filtrable agent and was characterized by the development of leukopenia and pronounced neutropenia on the sixth to the ninth day after exposure to the infectious agent. There was no anemia of any note. Figure 1 shows the changes which occur in the white blood cells in a typical animal with this disease.

The pathologic changes were limited almost entirely to the bone marrow, lymph nodes, spleen and intestine. The changes in the lymph nodes and spleen were principally those due to proliferation of the reticuloendothelial cells. Intranuclear inclusion bodies were found in the epithelial cells of the gastrointestinal mucosa, in reticular cells of the lymphoid tissue and in the alveolar epithelium of the bronchial mucous glands. In the bone marrow, the most striking change was in the granulocytic cells. These were in most instances reduced in total numbers, and in all instances there was absence of differentiation into late myeloid forms at the height of the disease. The erythroid cells remained in normal percentages, and the same was true for the megakaryocytes. If the animal recovered, the bone marrow showed a very sudden and dramatic transformation. Within twenty-four hours the total number of bone marrow cells increased a great deal and, along with this, there

was some differentiation into late myeloid forms. By the end of four days, the marrow had returned to an essentially normal picture. Figures 2, 3, 4, 5, 6 and 7 are typical areas of the bone marrow of one animal taken at the height of the disease and at twenty-four hours and seventy-two hours after recovery began. It will be seen from these illustrations that the bone marrow picture obtained in this disease varied a great deal, depending on the stage of the disease at which the specimen was obtained. If changes occur as rapidly in the bone marrow of the human disease as they do in that of the cat, it is easy to understand how various pictures may be ascribed to the bone marrow in the human disorder.

While it is conceded by all that maturation arrest and hypoplasia of the myeloid elements of the bone marrow probably represent the major processes involved in the development of neutropenia in cases of acute agranulocytosis, nevertheless it should be mentioned that, in the minds of some, these mechanisms do not explain the entire picture. Thus the sudden precipitous disappearance of neutrophils in patients sensitive to aminopyrine is difficult to explain on this basis, since the neutrophils may disappear from the peripheral blood within a few hours after the ingestion of aminopyrine. Fitz-Hugh⁵ has suggested that peripheral destruction of the white blood cells may account for this part of the reaction in man. Recent studies at the University of Rochester point rather strongly to peripheral destruction being an important factor in "infectious feline agranulocytosis." Cats with severe leukopenia have had about one third of their blood removed by cardiac puncture at the same time that an equivalent amount of blood from a normal cat was being given into the femoral vein. By this procedure it has been found impossible to elevate the white blood cell count of the



Fig. 3.—Same section shown in figure 2, slightly reduced from a photomicrograph with a magnification of 1,500 diameters. Note the absence of differentiation of the myeloid cells.

leukopenic animal for more than a very brief temporary period. In another experiment, an animal with only 50 white blood cells per cubic millimeter was joined to

3. Rohr, Karl: Blut- und Knochenmarksmorphologie der Agranulocytosen, (Ergebnisse fortlaufender Sternmarkuntersuchungen), *Folia haemat.* 55: 305, 1936.

4. Lawrence, J. S.; Syverton, J. T.; Shaw, J. S., and Smith, F. P.: Infectious Feline Agranulocytosis, *Am. J. Path.* 16: 533 (May) 1940.

5. Fitz-Hugh, Thomas, Jr.: Sensitivity Reactions of the Blood and the Bone Marrow to Certain Drugs, *J. A. M. A.* 111: 1643 (Oct. 29) 1938.

a normal cat by means of the carotid arteries. Cross circulation was instituted and the animals lived for four hours. The total number of white blood cells was increased in the diseased animal to values comparable

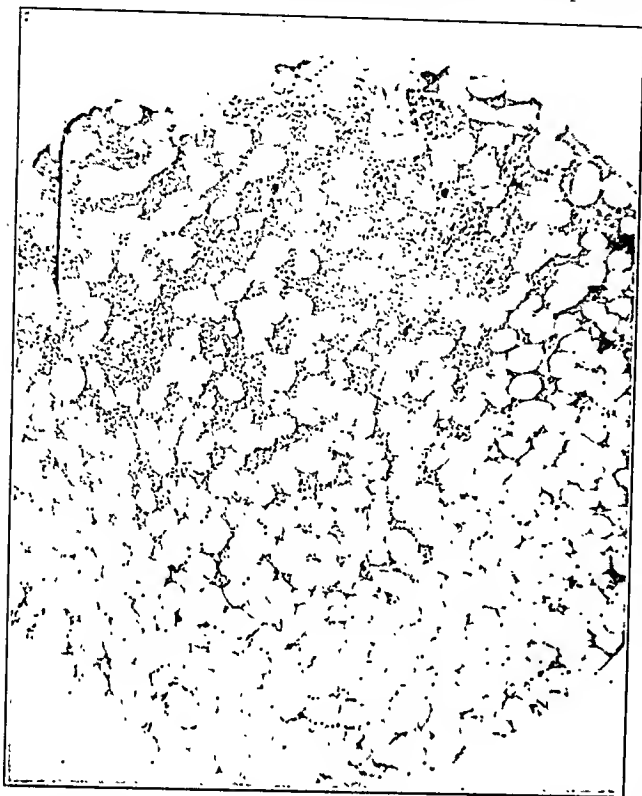


Fig. 4.—Section of bone marrow from femur of cat 279 on first day of recovery. The total number of cells has increased materially. Reduced from a photomicrograph with a magnification of 100 diameters.

with those for the normal animal, but there was a decided increase in early or "stab" forms, indicating that the bone marrow of the normal cat was being forced to work hard in order to keep the cells up to this level. A similar experiment with two normal cats did not result in any "shift to the left" during a period of twelve hours.

The following case is illustrative of leukopenia due to acute agranulocytosis:

CASE 1.—A. K., a white woman aged 76, a widow, was admitted to the Rochester Municipal Hospital April 12, 1935. The pathologic changes of interest were moderate pyrexia associated with a diffusely red throat and infection of the gums. She had a white blood cell count of 1,420 per cubic millimeter, all of which cells were lymphocytes. The red blood cell count was 3,500,000 per cubic millimeter, and the hemoglobin was 10.2 Gm. per hundred cubic centimeters. She died on the fourth day after admission, her white blood cell count having dropped in the interim to 200 per cubic millimeter. No neutrophils were found. The bone marrow of this patient showed moderate depletion of myeloid cells, all of which were of an early undifferentiated type. Red cell progenitors were in normal abundance. Figure 8 shows a typical area from a stained section of this bone marrow.

3. *Aplasia of the Bone Marrow.*—Not many cases of true pathologic aplasia of the bone marrow are encountered, since most patients with so-called aplasia of the bone marrow have merely functional aplasia, as pointed out by Thompson and his associates.⁶ As representa-

tive of true aplasia of the bone marrow may be mentioned the following case:

CASE 2.—F. G., a white man aged 56, married, was admitted to the Strong Memorial Hospital May 29, 1931 with the following blood picture: red blood cells 1,270,000 per cubic millimeter, hemoglobin 3.5 Gm. per hundred cubic centimeters, white blood cell count 3,600 per cubic millimeter. The differential white blood cell count was neutrophils 38 per cent, lymphocytes 58 per cent and monocytes 4 per cent. One normoblast was found in the blood smear. Platelets were practically absent from the blood smear. The patient died July 24, at which time the white blood cell count was 1,600 per cubic millimeter. The bone marrow showed marked depletion of cells of all types. Figure 9 represents a typical area from a stained section of the vertebral bone marrow of this patient.

4. *Infiltration of the Bone Marrow.*—This usually results in an increased number of white blood cells in the peripheral blood, but in exceptional instances, when the infiltration is marked, leukopenia may result.

INCREASED ELIMINATION OF WHITE BLOOD CELLS

A clear-cut illustration of this mechanism is not easy but theoretically it is a distinct possibility. In cases of severe infection, leukopenia occasionally results. The usual explanation of this is that the toxin or toxins elaborated suppress the bone marrow. However, there is no positive evidence that the leukopenia is due to this, and it may be that it results from massive loss of cells. The following case may be used for purposes of discussing this mechanism:

CASE 3.—E. J., a white woman aged 44, married, admitted to the Strong Memorial Hospital Dec. 26, 1934, had had diarrhea for four weeks and had a typical course of ulcerative colitis. Her white blood cell count was 2,050 per cubic millimeter and the differential picture was as follows: myelocytes 1 per cent, juveniles 7 per cent, stab cells 32 per cent, segmented cells 44 per cent, lymphocytes 16 per cent. At autopsy, multiple ulcers of the large intestine were found with acute inflammation and necrosis and multiple perforations of the cecum. The bone marrow showed large numbers of cells of

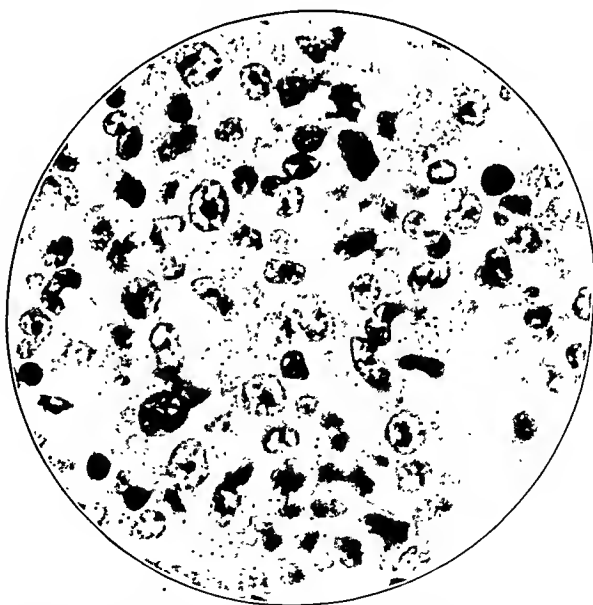


Fig. 5.—Same section shown in figure 4, slightly reduced from a photomicrograph with a magnification of 1,500 diameters. Note that differentiation of myeloid cells into stab forms is seen to have begun.

all types. There was a moderate increase in the number of eosinophils. The erythroid cells appeared normal. The myeloid cells were present in large numbers and showed good differentiation into adult forms. The megakaryocytes were normal.

6. Thompson, W. P.; Richter, M. N., and Edsall, Katherine S.: An Analysis of So-Called Aplastic Anemia, *Am. J. M. Sc.* 187:1 (Jan.) 1935.

It is obvious that several factors may have been responsible for the leukopenia. For example, poor absorption from the gastrointestinal tract, deficient food intake, elaboration of a leukotoxic substance and loss of white blood cells into the gastrointestinal tract or the peritoneal cavity or both should all be considered with reference to the leukopenia. However, we have had a few other cases of infection of the bowel associated with leukopenia, and it seems at least possible that the leukopenia may be due in part to increased elimination of white blood cells. Certainly the appearance of the bone marrow in this case points to satisfactory manufacture of these cells.

INCREASED RATE OF DESTRUCTION IN THE PERIPHERAL BLOOD

This could be due either to abnormality of the white blood cells or to abnormal substances in the blood

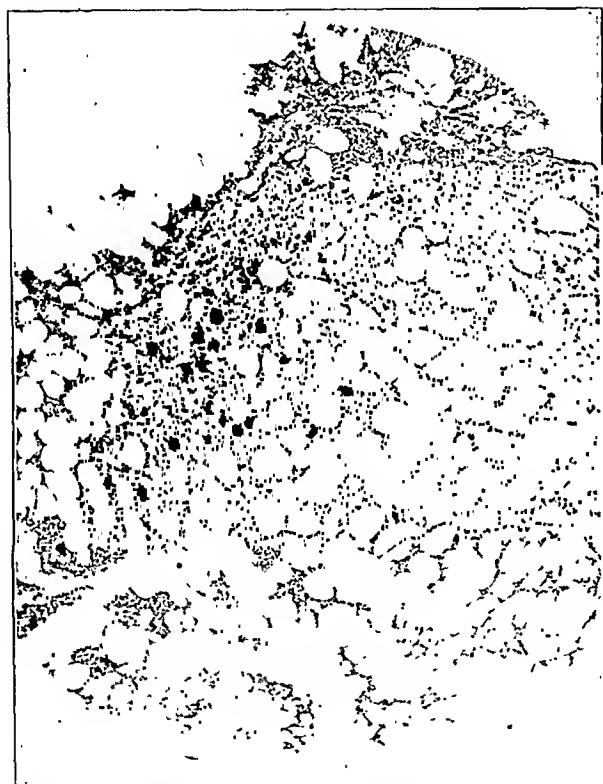


Fig. 6.—Section of bone marrow from humerus of cat 279 on the third day of recovery. Reduced from a photomicrograph with a magnification of 100 diameters.

plasma. I feel confident that both conditions exist at times. The following unusual case may be taken as illustrative of probable increased rate of destruction in the peripheral blood:

CASE 4.—W. G., a white woman aged 60, unmarried, has been seen in the Rochester Municipal Hospital on repeated occasions since 1928, the last admission being on Jan. 1, 1940. In 1928 she was found to have a white blood cell count of from 600 to 1,300 per cubic millimeter. On each of her admissions since then she has been found to have a pronounced leukopenia. Her admission in October 1939 was occasioned by excessive bleeding associated with thrombopenia, which she had not had previously. The differential count at this time was eosinophils 6 per cent, myeloblasts 1 per cent, myelocytes 10 per cent, juveniles 19 per cent, stab cells 7 per cent, segmented cells 11 per cent, lymphocytes 31 per cent, monocytes 10 per cent, degenerated cells 4 per cent, unclassified 1 per cent. The

total white blood cell count was 1,700 per cubic millimeter. A specimen of sternal bone marrow revealed conditions within normal limits. In view of this and of the fact that this woman

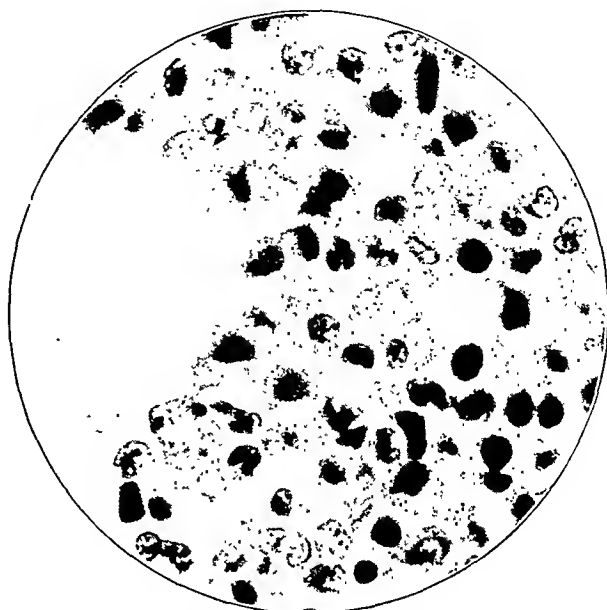


Fig. 7.—Same section shown in figure 6, slightly reduced from a photomicrograph with a magnification of 1,500 diameters. Note that normal differentiation of the myeloid cells was found.

had had severe leukopenia over a period of twelve years without any story of repeated or severe infections, it was felt that she probably was manufacturing a normal number of white

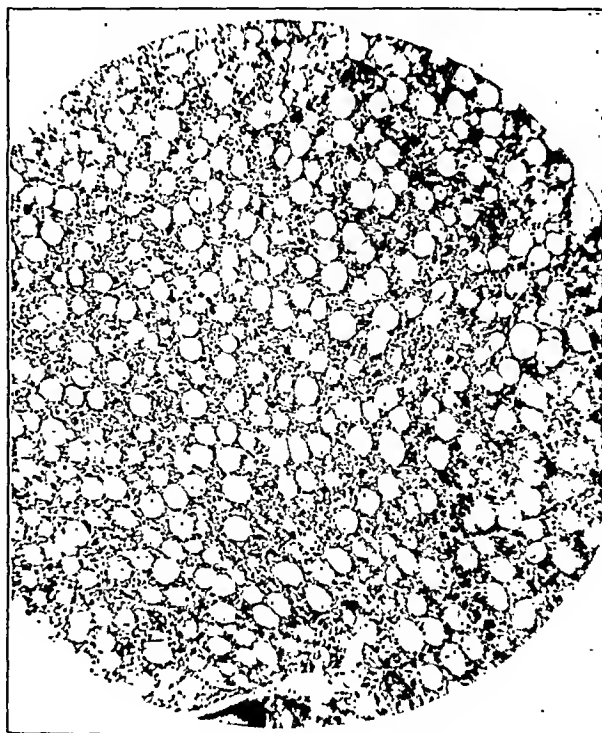


Fig. 8 (case 1).—Bone marrow in human acute agranulocytosis. Section of the vertebral bone marrow, reduced from a photomicrograph with a magnification of 100 diameters. Under high magnification, absence of differentiation of the myeloid cells was found.

blood cells. Her main difficulty seemed to be due to thrombopenia. Accordingly, it was decided to remove her spleen. This was done on January 22. Five hours after splenectomy she

had 13,000 white blood cells per cubic millimeter, and the differential count was juveniles 1 per cent, stab cells 34 per cent, segmented cells 53 per cent, lymphocytes 3 per cent, monocytes 7 per cent, degenerated cells 2 per cent. The white blood cell count gradually returned to its low level. She made an uneventful recovery and left the hospital free from hemorrhagic tendencies.

While the postoperative rise in white blood cells was not as severe as usual, it was appreciable, particularly since the normal level for this woman was low. This demonstrates that she was able, under the proper stimulus, to produce white blood cells in large numbers. The fact that she has gone so long with the leukopenia and without having any more trouble with infections than is customary for the normal adult makes me believe that she may have been manufacturing normal numbers of white blood cells. Of course this view is hypothetical and not proved.

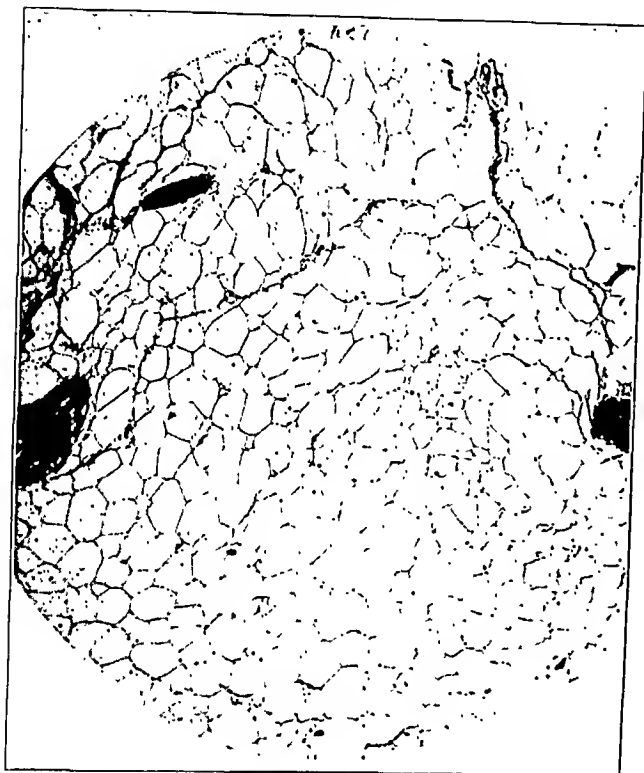


Fig. 9 (case 2).—Bone marrow in true aplastic anemia. Section of the vertebral marrow, reduced from a photomicrograph with a magnification of 100 diameters. Note the almost complete absence of cells of all types.

That white blood cells may be destroyed in large numbers in the peripheral blood has been shown conclusively by Chew, Stephens and Lawrence,⁷ who were able to cause the disappearance of all neutrophils from the peripheral blood of the guinea pig in three minutes by the intracardial injection of antineutrophilic serum. This antiserum was produced by repeated injections of large numbers of neutrophils of the guinea pig into the ear vein of rabbits. Figures 10 and 11 show the effect of antineutrophilic serum on the peripheral white blood cell picture of the guinea pig. It will be seen that the effect of this antiserum on the neutrophils persisted for from twenty-four to eighty-four hours. Study of sections made from various organs of the body failed to reveal any accumulation of these cells in them. Further, it was shown that neutrophils could not be called forth by infection or other agents that ordinarily produced

local accumulation of neutrophils in those animals which had been treated with antineutrophilic serum. For example, animals made leukopenic by the injection of this antiserum showed no accumulation of neutrophils

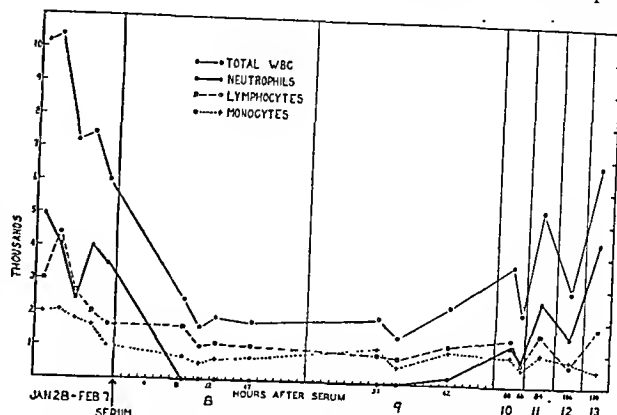


Fig. 10.—Effect of antineutrophilic serum on the peripheral white blood cell picture of the guinea pig. Note the decided drop in the number of neutrophils. These cells did not return to their normal level until eighty-four hours later.

in the subcutaneous tissue at the site of the injection of 0.1 cc. of a twenty-four hour broth culture of *Staphylococcus aureus* as contrasted with the local accumulation of large numbers of neutrophils in untreated healthy control animals when injected with the same amount of the broth culture. Recently, my associates and I have been able to show that, coincident with the peripheral leukopenia, there is a diminution in the

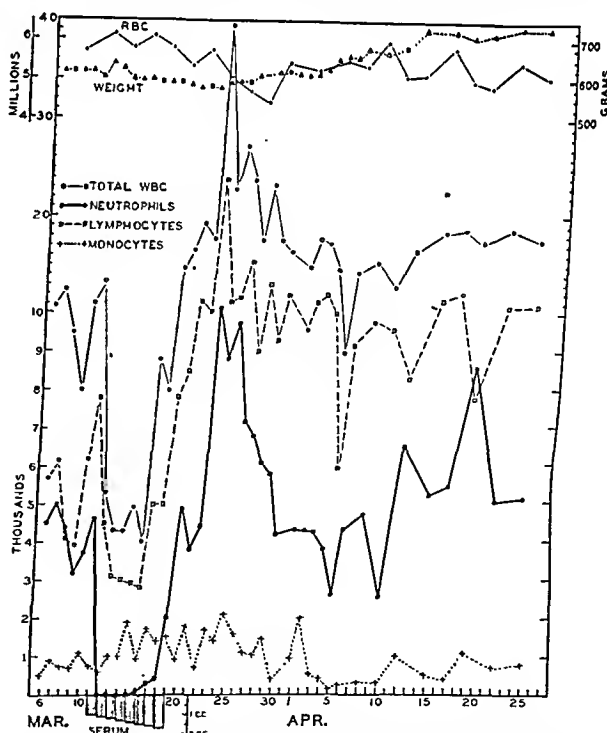


Fig. 11.—Effect of repeated injections of antineutrophilic serum on the peripheral white blood cell picture in the guinea pig. Note that the granulocytopenia was maintained for seven days and that there was a compensatory leukocytosis after this. The red blood cells were not affected.

number of white blood cells in the omental venules. This condition has been observed for three and one-half hours following intravenous injection and has been

7. Chew, W. B.; Stephens, D. J., and Lawrence, J. S.: Antileukocytic Serum, *J. Immunol.* 30: 301 (April) 1936.

demonstrated in animals from twelve to eighteen hours after the intraperitoneal injection of antineutrophilic serum. In these studies we opened the peritoneal cavity of the guinea pig and removed a part of the intact omentum. This has been placed on a warm stage and kept moist with physiologic solution of sodium chloride. The circulation has been observed then through a microscope and, in some instances moving pictures have been taken.

REDISTRIBUTION IN THE VASCULAR CHANNELS

This is a well known phenomenon and has been commented on often in physiologic literature. One of the most detailed discussions of this subject with which I am familiar is that by Vejens.⁸ Hydrophile colloids such as gelatin, globulin and fibrinogen are known to produce peripheral leukopenia and neutropenia when given intravenously. This response is thought to be due to the white blood cells, particularly the neutrophils, assuming a marginal position in the venules in certain of the internal organs, i. e. liver, spleen and

most conditions it functions well and maintains a normal ratio of cells in the vascular channels to those in the tissues. Occasionally this mechanism breaks down and one may find great numbers of cells in the tissues but only a few in the blood. The best illustration of this I know is in so-called aleukemic leukemia. In this condition there may be leukopenia and yet the various tissues in the body may be filled up with white blood cells. That this may occur in other conditions is a distinct possibility.

CONCLUSION

There are at least five different mechanisms which may be responsible for leukopenia. If more thought is given to leukopenia with reference to the mechanism which may be at fault, progress in its interpretation and handling will be enhanced.

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ABSTRACT OF DISCUSSION

DR. RUSSELL L. HADEN, Cleveland: The problem of leukopenia from the clinical point of view concerns the polymorphonuclear cells almost entirely. For this reason the term granulopenia seems preferable. Few of us appreciate what is happening to the granular cells normally. Each cell lives only a short time—probably not over four days—so that five to ten billion new cells must be released from the marrow every day to make up for those destroyed. The number of granular cells which can be made by the marrow to supply normal needs is enormous. The granular cells have little function while in the circulation. Cells in a stained film of blood are en route from the marrow to the point of activity. Almost all the cases of granulopenia seen clinically belong to Dr. Lawrence's first group. In thinking of granular leukopenia one considers (1) whether the marrow tissue is deficient in quantity as it is in the leukopenia of aplastic anemia; (2) whether the marrow tissue is functioning normally; the function is qualitatively impaired with aminopyrine intoxication, so the cells do not mature normally; in the depression seen with Banti's disease there is a quantitative decrease in function, or (3) whether there is some mechanical barrier to the emergence of cells from the marrow. In leukopenic myeloid leukemia the hyperplastic marrow seems to keep the cells from leaving the marrow normally. Probably this mechanical factor plays a more important part in leukopenia than is ordinarily realized. In the last two years, we have studied in our hematology laboratory 22 cases in which the total white blood cell count was below 2,500. In 2 an infection and in 4 various drugs had produced leukopenia by depressing the marrow. In 13 cases, leukemia or other bone marrow disease was responsible for the leukopenia. I was unable to classify 3 cases as to etiology. I will review our cases again in the light of Dr. Lawrence's discussion and try to determine whether the other mechanisms responsible for producing leukopenia might be operative in our cases. It is possible, as he suggests, that the cells may be taken out of the circulation rapidly or be destroyed in the circulation. We are indebted to Dr. Lawrence for emphasizing the numerous ways in which leukopenia may be brought about.

DR. JOHN S. LAWRENCE, Rochester, N. Y.: We have found it impossible to increase, except temporarily, the white blood cell count of animals at the height of the disease by means of replacement of large amounts of diseased cats' blood by the blood of normal cats. Of course we recognize that this does not prove that the cells were destroyed. They may have been lodged in the blood vessels in various areas of the body. We are trying to prove this point, and one of the procedures that we are carrying out is the use of cross circulation between the normal animal and the animal that has, say, 50, 100 or 200 white blood cells in the peripheral blood. I think that by means of this we shall be able to answer the question. We have not done enough work in this connection to make any final statement, but, as far as it goes, it does indicate that in

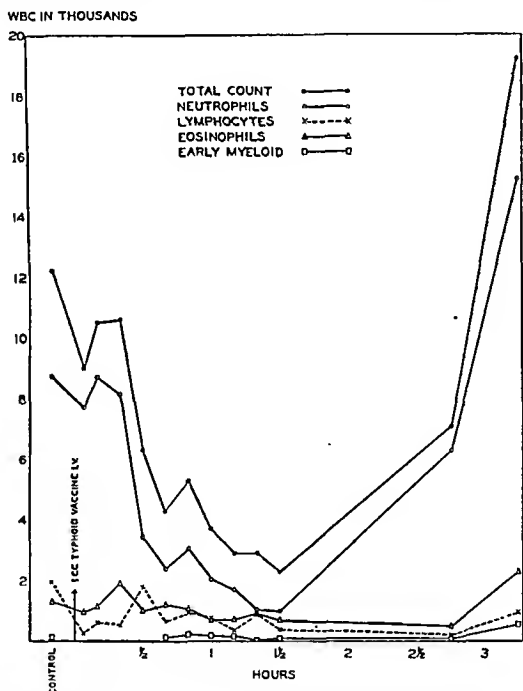


Fig. 12.—Effect of typhoid vaccine on the peripheral white blood cell picture of the cat; 1 cc. of typhoid vaccine was given intravenously.

omentum. This phenomenon can be readily observed under the microscope. My associates and I⁹ have recently shown kodachrome moving pictures of the omental circulation which illustrate this reaction very well. One of the best clinical illustrations of this is to be found following injection of typhoid vaccine intravenously in man. Figure 12 shows the changes in the peripheral blood of the cat following injection of typhoid vaccine intravenously.

REDISTRIBUTION IN THE BODY AS A WHOLE

The mechanism that is responsible for the distribution of the white blood cells between the tissues and the vascular channels is unknown. However, under

8. Vejens, Gert: The Distribution of Leukocytes in the Vascular System, Acta path. et microbiol. Scandinav., 1938, supp. 33, p. 1.

9. Lawrence, J. S.; Stringfellow, Margaret B.; Ackart, R. J.; Bishop, F. W., and Ariel, Irving: Infectious Feline Agranulocytosis: Kodachrome Moving Picture Demonstration of the Circulation of the Omentum as Affected by Serum from a Cat with This Disease, J. Clin. Investigation, to be published.

this particular disease (which is not a disease of man, however) there is peripheral destruction taking place, and that normal cells given to a diseased cat will be destroyed rapidly. I am not sure that I would agree entirely with Dr. Haden about placing almost all of the cases of leukopenia that we have in group I, since I feel that if more study is made of leukopenia we shall be able to place more and more patients with leukopenia in other groups.

THE USE OF BISMUTH COMPOUNDS IN SYPHILOTHERAPY

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AND

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In the past twelve years the treatment of all types of syphilis at the University of Chicago Clinics has been planned with the use of much more bismuth than has usually been considered as standard or optimum treatment. In this report we wish to evaluate the results of such treatment of early syphilis, asymptomatic neurosyphilis and tabes dorsalis over a ten year period and compare these results, as far as possible, with corresponding data from the Cooperative Clinical Group studies.

PRESENT DAY STATUS OF BISMUTH IN SYPHILOTHERAPY

Since Sazerac and Levaditi¹ in 1921 first popularized bismuth as an antisyphilitic drug, it has gone through much the same cycle as was previously traversed by the roentgen ray and arsphenamine and as we have recently seen carried out with sulfanilamide. There was first a period of overoptimism, especially on the part of some members of the French school who hailed bismuth compounds as superior to the arsphenamines if not in initial potency certainly on the grounds of lesser toxicity. Many new bismuth preparations were offered for use with little or no investigation as to their efficacy or toxic effects. Reports soon began to appear of accidents in the course of treatment, intoxications, sometimes with fatal results, and later, evidence that the therapeutic efficiency of the drug was not nearly as great as was at first thought. The next portion of the cycle, in which we still find ourselves as far as bismuth is concerned, is that of careful experimental study and clinical trial which will eventually determine its place in the treatment of syphilis.

The present day knowledge of bismuth as an antisyphilitic drug can be briefly summarized. Bismuth will cure experimental syphilis in animals; it causes sterilization of surface lesions, reversal of the Wassermann reaction and cure as shown by lymph node transfers. "Cures" have been reported in a certain percentage of patients with early syphilis who were treated with bismuth compounds alone.² At the hôpital Cochin in Paris, bismuth has been used to the exclusion of the arsenicals in all types of syphilis since 1921 with what

the staff considers good results.³ On the other hand, there are reports of clinical and serologic relapses in patients while they were under bismuth therapy.⁴ In addition, the prophylactic use of bismuth, which at first seemed to offer such a potent weapon for the control of syphilis, has been condemned because it does not uniformly prevent infection.⁵ Thus bismuth alone, while sufficient in some instances, cannot be relied on to cure syphilis.

An enormous amount of work has been done, chiefly in this country, during the past fifteen years on the pharmacology of bismuth preparations (Cole and Sollmann, Hanzlik, Kolmer, Klander, Gruhitz). In general, the effectiveness of bismuth salts in syphilotherapy seems to be directly proportional to the amount of elemental bismuth which is available in an ionizable form in the body. This is dependent on the bismuth content of the compound, its physical properties (tissue solubility), the vehicle used and the amount administered. The spirocheticidal effect varies in different animals.⁶ There is also probably some difference in behavior between the electronegative and electropositive forms, especially as regards penetration of the nervous system.⁷ The recent work of Eagle⁸ suggests that the mode of action of bismuth in syphilotherapy is a direct spirocheticidal effect rather than a secondary effect through the formation of a protein-bismuth complex, bismoxyl, postulated by Levaditi.⁹

A large part of the experimental work deals with absorption, excretion and toxicity of the various bismuth preparations. It was found early that bismuth compounds given intravenously were highly toxic and could not safely be used therapeutically.¹⁰ The literally hundreds of compounds that have been advocated for intramuscular use can be classified roughly as follows: (1) tissue soluble, (2) water soluble, (3) water soluble suspended in oil, (4) oil soluble in oil and (5) insoluble suspended in oil. Their tissue solubility, which determines the rate of absorption, decreases in the order in which they are listed. The tissue-soluble salts are rapidly absorbed to give a relatively transient high concentration of bismuth in the blood as gaged by a rapid urinary excretion. The toxicity of these preparations is greater, and their chemotherapeutic index in some cases may be as low as one.⁶

On the other hand, the insoluble salts suspended in oil are absorbed very slowly, and with repeated doses there is a cumulative effect. The therapeutic index of these preparations may be as high as 166.⁶ A certain variable proportion of the bismuth introduced into the body is not excreted at once but is retained by the various organs and eliminated gradually over a long period of time. This is exclusive of the bismuth depots which are formed at the sites of injection when any but the

3. Schwartz, A.: La bismuthothérapie de la syphilis dans le service du docteur Louis Fournier à l'hôpital Cochin (1921-1930), Ann. Inst. Pasteur 45: 386 (Sept.) 1930.

4. Sutton, I. C.: Syphilis Resistant to Bismuth, Am. J. Syph. 11: 330 (Oct.) 1927. Tzanek, A., and Klotz, H. P.: Syphilides secondaires au cours d'un traitement bismuthique régulier, Bull. Soc. franç. de dermat. et syph. 43: 429 (Feb.) 1936.

5. Moore, J. E.: The Modern Treatment of Syphilis, Springfield, Ill., Charles C. Thomas, 1933, p. 165.

6. Kolmer, J. A.; Brown, Herman, and Rule, Anna M.: Studies in the Bismuth Therapy of Syphilis, Am. J. Syph., Gonorr. & Ven. Dis. 23: 7 (Jan.) 1939.

7. Hanzlik, P. J.; Mehrtens, H. G., and Spaulding, J. B.: Cerebral and Spinal Fluid Penetration of Bismuth, Am. J. Syph. 16: 350 (July) 1932.

8. Eagle, Harry: Minimal Effective Concentration of Arsenical and Bismuth Compounds on T. Pallidum in Vitro in Relation to the Therapeutic Dose, Am. J. Syph., Gonorr. & Ven. Dis. 23: 310 (May) 1939.

9. Levaditi, cited by Stokes, J. H.: Modern Clinical Syphilology, Philadelphia, W. B. Saunders Company, 1934, p. 243.

10. Klander, J. V.: Intravenous Injections of Bismuth Compounds in the Treatment of Syphilis: Their Use Clinically and in Experimental Syphilis in Rabbits, Arch. Dermat. & Syph. 17: 332 (March) 1928.

This work was aided by a grant from the Kuppenheimer Foundation. From the Section on Dermatology, School of Medicine of the Division of Biological Sciences, University of Chicago.

Read before the Section on Dermatology and Syphilology at the Ninety-First Annual Session of the American Medical Association, New York, June 13, 1940.

1. Sazerac, R., and Levaditi, C.: Traitement de la syphilis par le bismuth, Compt. rend. Acad. d. sc. 163: 338, 1921.

2. Chargin, Louis, and Stone, Abraham: Early Syphilis: Results of Treatment in Four Hundred and Forty-Four Cases, Arch. Dermat. & Syph. 19: 750 (May) 1929. Wright, C. S.: Bismuth in Early Syphilis, J. Chemotherapy 15: 1 (April) 1938.

tissue-soluble salts are used. The greater portion of bismuth is excreted through the kidney and the remainder through the bowel. The relative proportion varies considerably with the preparation used but in general is about 9 to 1. All investigators have found essentially the same percentage distribution of the stored bismuth in the organs and tissues. Listed in order of decreasing percentage content, they are kidney, liver, bile, spleen, ileum, colon, lung, jejunum, brain and blood. The actual amount of bismuth in any one organ depends on the dosage, but the relative distribution is independent of the amount given.

As might be expected, since approximately 90 per cent is excreted through the kidney and since this organ shows the highest concentration of bismuth, it is the first to show toxic effects in the experimental administration of bismuth. According to Kolmer⁶ the injury is primarily and essentially a nephrosis with maximum changes in the convoluted tubules. The pathologic changes are the same regardless of the type of compound used, and thus probably are caused by the bismuth itself. Recent autopsy studies¹¹ have been made on 15 patients who received intramuscular bismuth therapy. In 2 there was evidence that renal damage due to bismuth probably contributed to the patients' death. However, renal damage did not seem to be proportional to the concentration of bismuth in the kidney.

COMPLICATIONS FROM BISMUTH THERAPY

The complications occurring during treatment that have been attributed to bismuth are many but fortunately the majority are of little real importance. Beerman¹² collected twenty-three deaths from the administration of bismuth recorded in the literature up to 1932. Of these six followed intravenous administration or were due to embolism subsequent to accidental intravenous injection. Seventeen deaths were due to delayed toxic effects which included acute yellow atrophy of the liver, stomatitis, nephritis, hemorrhagic phenomena and granulocytopenia. Vigne¹³ listed the relative frequency of intolerance to bismuth in 202 of 2,390 patients as follows: stomatitis, 72 per cent; bismuth grip, 10 per cent; local pain, 9 per cent; abscess, 3.3 per cent; cutaneous eruptions, 5 per cent; all other, 6 per cent.

These proportions would vary considerably depending on the type of patient, technic of administration and the preparation used. The most common are oral complications varying from the well known blue line to ulceration. The frequency of actual stomatitis has been found to be inversely proportional to the quality of the oral hygiene of the patient.¹⁴

Some degree of local pain at the site of injection is about as frequently complained of as the blue line on the gums but it is seldom severe. In many patients there develop localized areas of induration in the gluteal muscles where the injections are usually given. These are in most cases only mildly tender. Formation of abscesses and localized embolism from accidental intra-arterial injection are relatively rare, although a considerable number of cases have been reported.¹⁵

The cutaneous manifestations of bismuth "hypersensitiveness" most commonly take the form of a mildly exudative pityriasis rosea-like eruption. Herpes zoster, exfoliative dermatitis and hemorrhagic, urticarial and erythema multiforme-like lesions have also been attributed to bismuth.¹⁶ Jaundice at times has apparently been caused by the drug.¹⁷ However, after jaundice and most of the cutaneous eruptions the drug may be resumed without a recurrence of the complication.

Most reactions to bismuth therapy are avoidable. Proper oral hygiene, careful injection technic followed by massage over the site of injection and regular examination of the urine would eliminate a high percentage of bismuth accidents and complications.

COMBINED TREATMENT WITH THE ARSPHENAMINES AND BISMUTH COMPOUNDS

A combined treatment of syphilis with the arsphenamines and bismuth was, of course, considered and tried soon after bismuth was found to be of use in syphilotherapy. For the most part there were two directly opposed trends of thought on the subject: (1) Why risk giving the toxic arsenicals when bismuth will accomplish the same result with a sacrifice only of time? (French school) or (2) Why bother with a less effective drug like bismuth when the arsenicals will do the work more quickly and better? (German school). In general it was considered that the combined toxic effects of the two drugs would offset any advantage gained.

Wright¹⁸ in 1927 was one of the first in this country to advocate the simultaneous administration of bismuth and the arsphenamines. Schamberg¹⁹ urged the use of combined treatment, giving as the chief advantage that thereby the dosage of and the reactions caused by the arsphenamines could be reduced. Both authors reported satisfactory serologic and clinical results. Sézary²⁰ in 1930 stated, after nine years' experience, that mixed treatment gave better results, no increase in toxic effects and fewer neurorecurrences, and he had also noticed that when arsphenamine was given with bismuth fewer cases of stomatitis were seen.

Clausen, Tatum and Longly²¹ have recently found evidence working with experimental rabbit syphilis that provides a scientific basis for combined treatment. They found that whereas the therapeutic effects of fractional doses of the arsphenamines and bismuth given together are mathematically additive this does not hold true for their toxic effects. Thus, giving three quarters of the minimal curative dose of bismuth plus one quarter the minimal curative dose of an arsphenamine, or vice versa, will cure rabbit syphilis; giving these same proportions as applied to minimal lethal doses of the drugs does not cause death.

The system of treatment used in the University of Chicago Clinics was devised by one of us (S. W. B.) following a study of the various methods used for the treatment of early syphilis at the Mayo Clinic.

11. Scholtz, J. R., and Chaney, A. L.: Studies on Tissue Concentration of Bismuth in Man, *Am. J. Syph., Gonorr. & Ven. Dis.* **23**:759, (Nov.) 1939.

12. Beerman, Herman: Fatalities Due to Bismuth in the Treatment of Syphilis, *Arch. Dermat. & Syph.* **26**:797 (Nov.) 1932.

13. Vigne, Paul: Statistique des cas d'intolérance à la médication bismuthique observés au cours des cinq dernières années au dispensaire de Marseille, *Bull. Soc. franç. de dermat. et Syph.* **37**:1034 (July) 1930.

14. Dexter, S. O., Jr.: Oral Manifestations of Syphilis, *Med.* **213**:345 (Aug. 22) 1935.

15. Chamberlin, L. W.: Accidental Intra-Arterial Injection of Bismuth in Oil with Demonstration of Bismuth by X-Rays in Arterioles of Penis, *Am. J. Syph., Gonorr. & Ven. Dis.* **22**:364 (May) 1938.

16. Skolnik, E. A., and Aleshire, Irma: Skin Eruptions from Bismuth Therapy in Syphilis, *J. A. M. A.* **98**:1798 (May 21) 1932.

17. Nomland, Ruben; Skolnik, E. A., and McLellan, L. L.: Jaundice from Bismuth Compounds Used in the Therapy of Syphilis, *J. A. M. A.* **111**:19 (July 2) 1938.

18. Wright, C. S.: The Effect of Bismuth Alone and in Combination with the Arsphenamines on the Wassermann Reaction, *Am. J. M. Sc.* **173**:232 (Feb.) 1927.

19. Schamberg, J. F.: Bismuth and Neoarsphenamine in Syphilis and a Plea for More Conservative Dosage of the Arsphenamines, *Arch. Dermat. & Syph.* **20**:431 (Oct.) 1929.

20. Sézary, A.: Le traitement mixte conjugué arsénio-bismuthique dans la syphilis, *Bull. Soc. franç. de dermat. et syph.* (Reunion dermat. de Strasbourg) **37**:981 (July) 1930.

21. Clausen, Tatum, A. L., and Longly, J. B.: Personal communication to the authors.

Table 1 compares the treatment schedule used at the University of Chicago Clinics with that proposed by the Cooperative Clinical Group²² for adequate continuous treatment for early syphilis. The principal points in which the two plans differ are: (1) the simultaneous administration of bismuth and arsenical and the con-

TABLE 1.—Treatment Schedules for Early Syphilis

Cooperative Clinical Group Continuous Treatment			University of Chicago Clinics Continuous Concurrent Treatment		
Weekly	Arsenical	Bismuth	Weekly	Arsenical	Bismuth
7	Ars. × 8		9	Ars. × 10	Bis. × 10
4		Bis. × 4	5		Bis. 2 cc. × 5
6	Ars. × 6		6	Ars. × 6	Bis. 1 cc. × 6
6		Bis. × 6	5		Bis. 2 cc. × 5
6	Ars. × 6		6	Ars. × 6	Bis. 1 cc. × 6
8		Bis. × 8	5		Bis. 2 cc. × 5
6	Ars. × 6		6	Ars. × 6	Bis. 1 cc. × 6
10		Bis. × 10	4	4 weeks' rest	
6	Ars. × 6		10		Bis. 2 cc. × 10
10		Bis. × 10	12	12 weeks' rest	
			10		Bis. 2 cc. × 10
69	32	38	26	26 weeks' rest	
			10		Bis. 2 cc. × 10
			52	1 year's rest	
			10		Bis. 2 cc. × 10
			176	28	81

tinuous administration of bismuth for the first forty to fifty weeks of treatment, (2) the short interval between all arsenical courses (never more than five weeks) and (3) the tapering off with four bismuth courses with increasing rest periods.

The 55 patients of whose treatment the results are summarized and compared with the Cooperative Clinical Group material (table 2) include all those who were under observation for over two years with an average observation time for the group of five years. There were 5 patients with seronegative primary, 9 with seropositive primary, 31 with early secondary, 6 with late secondary and 5 with early latent syphilis. Seven had had some previous treatment but of these all had positive blood reactions and 5 had active lesions when first seen.

Bismuth salicylate in oil was used intragluteally in all cases. In a few patients with secondary eruptions two to three preparatory injections of soluble bismuth were given before starting the regular schedule. Gruhitz,²³ Irgang²⁴ and more recently Kolmer⁶ found that bismuth salicylate in oil is probably the best tolerated of the bismuth preparations, yet because of its slow absorption, repeated doses keep the tissue concentration as judged by urinary excretion (2 to 4 mg. per day²⁵) at a therapeutic level over long periods of time.

The arsenical used must also be considered in evaluating the effect of bismuth in any course of combined treatment and is of particular interest in this series. In 80 per cent of the patients an experimental arsenical, thioarsine, was used entirely or in part. When used alone it was found to be unsatisfactory both from the standpoint of reactions and the clinical and serologic results as compared to arsphenamine.²⁶ Thus the role

of bismuth seems to be relatively more important in our results. Four patients of the series were, for experimental reasons, treated with initial courses of thioarsine before any bismuth was given.

The statistical results given in table 2 for the Cooperative Clinical Group were taken or calculated from the most recent evaluation of their material by Stokes and Usilton²⁷ and include only the results from patients receiving continuous treatment who were under observation for over two years. The most significant figures for comparison are those showing the relative amounts of bismuth given, the percentage of final reversals of the blood Wassermann reaction and the percentage of probable cures.

Some further explanation of the results is necessary. The data may not be comparable since many of the 1,423 Cooperative Clinical Group patients, although receiving continuous treatment, may not have received the full recommended course, whereas almost all of our patients received treatment according to plan. The 143 patients mentioned as receiving ideal continuous treatment and observed for from two to ten years would be more nearly comparable, but unfortunately complete statistics were not given for this group. A retardation in the reversal of the blood Wassermann reaction when bismuth and arsenical compounds are used simultaneously, a point recently emphasized by Beerman,²⁸ was noted in our series. The 91 per cent final reversal of the blood Wassermann reactions given for the Cooperative Clinical Group study was computed inversely from the 123 patients who still had positive blood Wassermann reactions at the end of the period of observation.

TABLE 2.—Comparison of Results in Treatment of Early Syphilis

	Source of Data	
	University of Chicago Clinic	Cooperative Clinical Group Studies
Number of cases.....	55	—
Average number of arsenical injections..	29	32 *
Average number of bismuth injections..	79	38 *
Metallic bismuth equivalent.....	10.0 Gm.	3.0 Gm.
Percentage reversal of blood Wassermann reaction in 3 months	38%	32%†
Percentage final reversal of blood Wassermann reaction	100%	91%†
Percentage of negative spinal fluid.....	100%	100%†
Number of cases.....	45 of 55	132 of 143
Complication of bismuth therapy.....	3 (5.4%)	—
Relapses	6 (9%)‡	7.7%†
	4 (7.4%)	143 patients
Irregular treatment §	8 (14%)	—
Time of observation.....	Over 2 years	Over 2 years†
Probable cures	100%	91% ? † 79.70%‡

* Continuous treatment recommended by the Cooperative Clinical Group.

† Stokes and Usilton.²⁷

‡ Two patients had cutaneous relapses after lapses early in treatment before any bismuth had been given and should not be considered in evaluating bismuth therapy.

§ Missed 3 or more successive weeks in first year.

|| Cooperative Clinical Group statistics cited by Moore.⁵

Of the 6 of our patients who relapsed, 2 were from the group of 4 previously mentioned who received an initial course of thioarsine without bismuth. Both had mucocutaneous relapses which occurred during this period. When combined treatment was given the lesions healed and the blood Wassermann and Kahn reactions

22. Stokes, J. H., and others: Cooperative Clinical Studies in Treatment of Syphilis: Early Syphilis. Ven. Dis. Inform. 13: 165 (May 20); 207 (June 20); 253 (July 20) 1932.

23. Gruhitz, O. M., and Sultzberger, J. A.: Bismuth Absorption, Distribution and Elimination, Am. J. Syph. 11: 103 (Jan.) 1927.

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25. Cole, H. N.; Sollmann, T., and Henderson, K.: Choice of a Bismuth Preparation, Am. J. Syph., Gonorr. & Ven. Dis. 23: 143 (March) 1939.

26. Becker, S. W., and Obermayer, M. E.: Clinical Observations on the Treatment of Syphilis by a Combination of Bismuth Salicylate and a New Arsenical Synthetic, Am. J. Syph. & Neurol. 19: 505 (Oct.) 1935.

27. Stokes, J. H., and Usilton, Lida J.: Continuous and Intermittent Treatment in Early Syphilis, Ven. Dis. Inform. 18: 66 (March) 1937.

28. Beerman, Herman: Lag in Reversal of Serologic Tests Under Bismuth in Course of Combined Chemotherapy, Am. J. Syph., Gonorr. & Ven. Dis. 23: 724 (Nov.) 1939.

rapidly became permanently negative. These patients should not be considered in evaluating the effect of bismuth, thus leaving only four (7.4 per cent) relapses. These 4 include 1 instance of iritis which appeared during the first combined course and healed in eight weeks without necessitating any modification of the treatment.

TABLE 3.—Routine and Alternate Treatment Schedules for Syphilis of the Central Nervous System

Routine Schedule			Alternate Schedule; Same as for Latent Syphilis		
Week	Arsenical	Bismuth	Week	Arsenical	Bismuth
5	Daily intravenous injection of sodium iodide, 25-100 cc. (10% solution) and daily intramuscular injection of soluble bismuth (bismuth sodium tartrate, 1 cc. of 1.5% solution)		10	Bis. × 10	
4	Rest 4 weeks		4	4 weeks' rest	
6	Ars. × 6	Bis. × 6	6	Ars. × 6	Bis. × 6
4	Rest 4 weeks		4	4 weeks' rest	
8	Bis. × 8		8	Bis. × 8	
4	Rest 4 weeks		4	4 weeks' rest	
6	Ars. × 6	Bis. × 6	6	Ars. × 6	Bis. × 6
4	4 weeks' rest		4	4 weeks' rest	
8	Bis. × 8		8	Bis. × 8	
4	4 weeks' rest		4	4 weeks' rest	
6	Ars. × 6	Bis. × 6	6	Ars. × 6	Bis. × 6
18	34		18	44	

If cerebrospinal fluid is still positive, continue with courses of ten weekly injections of bismuth with two month rest periods indefinitely, plus tryparsamide or fever therapy if spinal fluid shows persistent prepatent changes.

If spinal fluid has become negative, taper off treatment with three courses of bismuth following increasing rest periods.

There were three serologic relapses. Two of these occurred after the six months rest period. They became and have stayed negative, one with further bismuth and autohemetic injections, the other, with two courses of combined therapy, one course of bismarsen and three courses of a bismuth compound. The third patient relapsed during the three months rest period. The entire routine treatment was repeated, producing an early reversal. However, during his six months rest period, after the second course of treatment, the blood again showed a 1 plus Wassermann reaction on one occasion. This became negative with further bismuth courses only and has remained negative for five years.

All of our patients with the possible exception of 10 in whom the spinal fluid was not examined (all patients who relapsed had negative spinal fluids) fulfil the requirements for a "satisfactory result" as defined by Moore—"All patients with reinfection; all those satisfactorily completing a year of probation (no lesions of syphilis, repeated negative blood Wassermann reactions, negative cerebrospinal fluid, normal physical examination); a few patients who had entered on but not yet completed the probationary year, with all findings negative."²⁹

Only 79.7 per cent "satisfactory results" were given by Moore²⁹ using these criteria in evaluating the Cooperative Clinical Group study. Stokes and Usilton²⁷ did not specifically mention any comparable figures, so the 91 per cent final reversal of the blood Wassermann reaction was also considered under percentage of probable cures.

The three complications due to bismuth that occurred were two instances of stomatitis and one gluteal abscess. No patients showed any significant urinary changes. A total of about 5,000 injections of bismuth compounds were given to the 55 patients. Two patients became

jaundiced during treatment. In both a diagnosis of acute catarrhal jaundice was made, and arsenicals and bismuth compounds were later given without further difficulty.

RESULTS OF TREATMENT OF ASYMPTOMATIC NEURO-SYPHILIS AND TABES DORSALIS

Probably because of the advent of more spectacular and rapidly effective methods of treatment for syphilis of the central nervous system such as fever, intraspinal or tryparsamide therapy little work has been done on the effect of bismuth in these conditions. There are a few early references to the beneficial effect of bismuth alone or in combination with fever therapy in both active tabes dorsalis and dementia paralytica.³⁰ Recently³¹ bismuth has been found the most effective drug for reversing the blood Wassermann reaction in syphilis of the central nervous system. As mentioned before, some physicians maintain that combined therapy gives fewer neurorecurrences and instances of late syphilis of the central nervous system. Bismuth has been demonstrated in the cerebrospinal fluid, and its passage into the nervous system seems to be facilitated by fever³² and also by alcohol.³³

The routine treatment for syphilis of the central nervous system as used in this study is outlined in table 3. When possible it was begun with five weeks' daily intravenous administration of iodides (25 to 100 cc. of a 10 per cent solution of sodium iodide and daily administration of soluble bismuth given intramuscularly (1 cc. of 1.5 per cent solution of bismuth sodium tartrate). If this was not feasible, the patient was given weekly injections of insoluble bismuth and iodides by mouth. Patients with clinical dementia paralytica or dementia paralytica fluid changes were, of course, imme-

TABLE 4.—Asymptomatic Neurosyphilis (Late)

	University of Chicago Clinics	Cooperative Clinical Group
Total number of cases.....	76	..
Sex	♂ 39 ♀ 37	♂ 298 ♀ 158
Reversal of cerebrospinal fluid reaction with routine treatment only *	71% 45 of 63	74% 152 of 203
Reversal with routine treatment plus tryparsamide therapy	50% 2 of 4	68% 32 of 47
Reversal with routine treatment plus fever therapy	75% 3 of 4	26% 22 of 82
Reversal with routine treatment plus fever plus tryparsamide therapy	33% 1 of 3	26% 9 of 34
Total reversals of spinal fluid reaction..	72% 34 of 76	64.4% 264 of 409
Percentage receiving supplementary treatment	14% 11 of 76	64% of 565
Clinical or serologic progression.....	1.2% 1 patient	4.6% of 229 †
Average number of bismuth injections	100	*
Bismuth equivalent (metallie).....	12.0 Gm.	

* For routine treatment see table 3. Cooperative Clinical Group minimum adequate treatment consists of 20 arsenicals and 20 heavy metal (bismuth) injections.

† Patients with late asymptomatic neurosyphilis who received adequate treatment.

diately given fever therapy when possible. The fever treatment was then followed by routine chemotherapy as outlined.

30. Foster, L. J., and Smith, W. A.: Use of Bismuth in Treatment of Tabes and Paresis. *J. Nerv. & Ment. Dis.* 60: 472, 1924.

31. Belding, David L.: Effect of Antisyphilitic Drugs on the Wassermann Test. *Am. J. Syph., Gonorr. & Ven. Dis.* 24: 29 (Jan.) 1940.

32. Klauder, J. V., and Brown, Herman: The Question of Bismuth Penetration of the Nervous System. *Arch. Dermat. & Syph.* 29: 351 (March) 1934.

33. Newman, H. W., and Richardson, A. P.: Effect of Alcohol on Penetration of Bismuth into the Central Nervous System. *Am. J. Syph.* 21: 77, 1937.

29. Moore, p. 188.

The "basic" routine therapy just mentioned does not differ greatly in amount from that considered by the Cooperative Clinical Groups as "minimal prescribed routine treatment,"³⁴ which consists of twenty arsenical and twenty to forty heavy metal injections. Further therapy, however, consists again of the prolonged administration of bismuth compounds, specifically: If the cerebrospinal fluid is still positive after the basic routine treatment, courses of ten weekly intramuscular injections of bismuth compounds with two month rest periods are continued until it becomes negative unless there is evidence of clinical progression or the spinal fluid shows persistent predementia paralytica changes, in which case fever therapy is given. Routine treatment as referred to in tables 4 and 5 should be interpreted as meaning the "basic" bismuth-arsenical courses plus all further bismuth, i. e. all treatment except fever, intraspinal or tryparsamide therapy.

TABLE 5.—Comparison of Results in *Tabes Dorsalis*

	University of Chicago Clinics			Cooperative Clinical Group *		
	Type of Treatment			Type of Treatment		
	Routine time †	Routine Plus Inten- sive ‡	Total	Routine time §	Routine Plus Inten- sive ¶	Total
Number of patients.....	79% 83	21% 14	100% 67	25% 266	72% 702	100% 968
Clinically arrested or im- proved	60% 32	36% 5	66% 38	—	—	53%
Clinically stationary....	35% 19	28% 4	31% 23	—	—	—
Clinically progressive....	4% 2	36% 5	10% 7	18% —	13% —	14%
Spinal fluids never posi- tive	0	..	0	—	—	—
Spinal fluids not reexam- ined	12	2	14	—	—	—
Spinal fluid reversals....	62% 22 of 35	50% 6 of 12	60% 28 of 47	60% —	..	51%
Average number of bis- muth injections	..	..	120	..	..	Over 2 yrs.
Average time of obser- vation	..	..	Over 3 yrs. 6	..	..	Over 2 yrs.

* Statistics taken or estimated from Cooperative Clinical Group study, O'Leary.³⁴

† See table 3.

‡ Intensive therapy included at University of Chicago Clinics tryparsamide and fever—malaria or typhoid—therapy; in Cooperative Clinical Group material it included tryparsamide, malaria and intraspinal therapy.

§ Twenty arsenical and forty heavy metal injections.

Tables 4 and 5 compare our results in the treatment of asymptomatic neurosyphilis and tabes dorsalis with as nearly comparable data as possible taken from the Cooperative Clinical Group studies:³⁵ A detailed analysis of cases based on the type of spinal fluid changes found was not significant in any of our data because of the comparatively small series. However, both the percentage distribution of the type of change found and the conclusion that the more severe the spinal fluid changes the more resistant they were to treatment were the same in both series. The important points brought out by both table 4 and table 5 are that not only do our final results appear better, as gaged by reversal of the changes in the spinal fluid and the low percentage of clinical and serologic progression, but these results are attained in a high percentage of cases by the prolonged use of bismuth alone rather than by the use of the more dangerous intensive measures such as fever, intraspinal and tryparsamide therapy.

34. O'Leary, P. A., and others: Cooperative Clinical Studies in the Treatment of Syphilis: Asymptomatic Neurosyphilis, *Ven. Dis. Inform.* 18: 45 (March) 1937.

35. O'Leary, P. A., and others: Cooperative Clinical Studies in the Treatment of Syphilis: Tabes Dorsalis, *Ven. Dis. Inform.* 19: 367 (July) 1938; footnote 34.

Many of our patients received truly massive doses of bismuth compared to the amount usually given, and the question of renal damage as the most likely serious result of chronic bismuth intoxication must be considered. The averages in metallic bismuth equivalents given for early syphilis, asymptomatic neurosyphilis and tabes dorsalis were 10 Gm. in three years, 13 Gm. in six years and 15.2 Gm. in six years respectively. The largest amount received by any 1 patient was approximately 35 Gm. over a period of eleven years. Periodic routine examinations of the urine were performed on all patients receiving antisyphilitic therapy. Although some patients occasionally showed traces of albumin there has been no evidence of serious renal damage. Several years ago at the suggestion of Dr. Cole renal function tests were made on several patients under treatment who had received considerable bismuth and the patients' kidneys were found to be normal. At the present time there is no evidence that there are any toxic effects from these large doses of bismuth.

SUMMARY

The twenty years experience with bismuth in syphilis therapy has shown that, although in some instances it will "cure" syphilis, it cannot be relied on as the sole antisyphilitic drug to the exclusion of the arsphenamines. Extensive studies of the many bismuth compounds advocated for intramuscular use indicate that the effectiveness of any one preparation depends on the ionizable bismuth which it makes available in the body. At the present time the consensus of opinion seems to be that bismuth salicylate in oil is the most suitable from the standpoint of the therapeutic effect, low toxicity and prolonged action.

Of the many complications reported from bismuth therapy, oral lesions and local manifestations at the site of injection are by far the most common though seldom serious. The greater proportion of complications could be avoided by proper oral hygiene and careful injection technic.

The method for the treatment of early syphilis presented differs from the usual one chiefly in the use of combined bismuth-arsenical courses, the continuous use of bismuth for the first forty to fifty weeks and tapering off of treatment with bismuth. About twice the usual amount of bismuth is used. The results of treatment of 55 patients with early syphilis by this method compare favorably with those of the Cooperative Clinical Group study for the continuous treatment of early syphilis. The respective percentages for the two systems were: final reversal of blood Wassermann reaction, 100 per cent and 91 per cent; relapses, 7.4 per cent and 7.7 per cent, and satisfactory result, 100 per cent and 79.7 per cent.

The results of a system of treatment for asymptomatic neurosyphilis and tabes dorsalis which uses prolonged bismuth therapy in place of the intensive measures such as fever, intraspinal and tryparsamide therapy also compared with the Cooperative Clinical Group results, in both instances the percentages of spinal fluid reversals, of progressions and clinical improvement being slightly in favor of the bismuth therapy. However, the important point is that bismuth produced these results in a great majority of patients without the use of fever, intraspinal or tryparsamide therapy.

The large amounts of bismuth received by these patients in no case caused any serious reaction or intoxication.

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ABSTRACT OF DISCUSSION

DR. DONALD M. PILLSBURY, Philadelphia: Sobisminol mass has been approved by the Council on Pharmacy and Chemistry in the treatment of syphilis. It has been shown to exert a potent spirocheticidal effect in experimental syphilis. The experimental results have been good with the exception of those of Kemp, who did not find an adequate spirocheticidal effect in rabbit syphilis. I have used sobisminol mass by mouth in 87 cases of congenital syphilis. I have no clinical indication that it is not a potent antisiphilic agent. In common with the general criticism of treatment by mouth, I think one cannot be certain that the treatment is administered as directed. It had been hoped that with a rapid method of bismuth determination in the urine which has been reported on by Hanzlik and his co-workers it would be possible to determine whether or not patients were actually receiving the bismuth, as directed. I have found that the determination of the bismuth on individual samples of urine is absolutely without value in this regard. Patients in the ward who I was certain were being given the drug gave occasional negative results in the urine or a very low bismuth concentration was noted. This finding is also noted in the report of Barnett. I am at present continuing the use of sobisminol mass by mouth only for patients kept in the wards of the hospital who I can be certain are being given the bismuth compound and on whose urine determination on twenty-four hour samples can be made. Very large doses of sobisminol mass are necessary for children; older children are given the dose which is ordinarily employed for adults, that is 1,200 mg. of the mass daily. One objection to this type of therapy has been the high incidence of gastrointestinal reactions, not severe, not always necessitating discontinuance of this type of treatment, but certainly discouraging. This has occurred in over 25 per cent of the cases. Another objection to this method of therapy is that the cost of the drug is high, about 5 cents a capsule, and with 3 to 6 capsules a day being given, this amounts to a drug cost of 1 to 2 dollars weekly.

DR. S. WILLIAM BECKER, Chicago: The series which we have presented is very small, but we feel that our results have been good and the treatment is devised so that it can be administered in an office without a great deal of equipment and without hospital facilities. As a matter of fact, this treatment was devised because we do not have facilities for intraspinal therapy. We have a small hospital service, so that we could not hospitalize patients for hyperpyrexial therapy. We do not feel that trypanamide should be used except when other methods are contraindicated. I have felt for a long time that a combination of arsenical and bismuth therapy in syphilis is efficacious and tends to prevent relapses. Tatum has recently, as Dr. Walsh has stated, verified our impressions in the laboratory. The combination of arsenical and bismuth therapy from the therapeutic standpoint is additive but from the toxic standpoint it is not additive, evidently because the two drugs affect different organs in the body. Our present inclination is to start the treatment of early syphilis immediately with mapharsen and a soluble bismuth compound. The patient seen with the primary lesion or with very early secondary syphilis is given mapharsen and a soluble bismuth compound every other day for three injections and then treatment is continued at five day intervals. It is surprising that we have been able to give large amounts of bismuth, insoluble bismuth, without encountering any serious difficulty. This was impossible in the case of mercury. The patient who was given insoluble mercury intragluteally for some reason or other would suddenly have a large amount of this material absorbed, and toxic symptoms would be produced. We have never observed this particular complication in connection with bismuth therapy.

Some of the Contents of Cheese.—Whilst butter contains little more than the fat of the milk, cheese contains the casein, a large proportion of the valuable mineral salts and an important part of the vitamins as well.—*Nature*, Dec. 21, 1940, p. 796.

THE NATURE AND PATHOLOGY OF
RADIATION SICKNESS

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It has been known for years that severe, sometimes fatal illness may develop in patients subjected to intensive irradiation. Weakness, nausea, vomiting, oliguria, bloody diarrhea, rapid feeble pulse, low blood pressure and profound prostration are prominent clinical features. Both the metabolism and the renal elimination of wastes are markedly reduced. It has been observed that exposure of the abdomen to roentgen rays caused signs of illness more often than exposure of other areas. Death results from circulatory failure resembling that produced by anaphylaxis, severe intoxications, burns or intestinal obstruction.

Space is lacking to discuss the various theories offered as explanations and the extensive experimentation done in search for further evidence. Those interested in these matters are referred to reviews.¹ Hall and Whipple² and Warren and Whipple³ noted that the manifestations after extensive irradiation were like those of heat burns but with this difference: The latter produce illness immediately, while radiation sickness develops after a latent period. They noted also that the signs of illness resulting from acute intestinal obstruction are exactly like those following deep abdominal radiation. They showed that the latter produced delayed necrosis of the glands and of the epithelium in the intestinal mucosa and ascribed the illness to the absorption of products of cellular disintegration. The mechanism of this effect was like that which Whipple had shown in experiments on closed intestinal loops.

We were impressed by the close resemblance between the manifestations of radiation sickness, high intestinal obstruction or strangulation and those of shock resulting from various causes. We have reported⁴ on the development of shock incidental to intestinal obstruction. It seemed of interest to compare both the physiologic disturbances and the postmortem findings of radiation sickness with those which characterize shock. Our initial experiments were arranged to duplicate closely the roentgen technic employed by Whipple. The physical factors employed were 130 kilovolts, 5 milliamperes, 2 mm. of aluminum filter, and 30 cm. skin-target distance. The output of the equipment was 72 roentgens per minute. Open field irradiation was given over the abdomen of healthy, normal dogs in amounts ranging from 1,400 to 2,800 roentgens. These amounts were given in one application divided between two abdominal areas.

No effects were observed for twenty-four to sixty hours, after which signs of illness developed. There were loss of appetite, vomiting, diarrhea and a decrease in the output of urine. Traces of blood were seen in

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1. Rolleston, H.: Harmful Effects of Irradiation: Critical Review. *Quart. J. Med.* 24: 101, 1930. Desjardins, A. U.: Action of Roentgen Rays and Radium on the Gastro-Intestinal Tract, *Am. J. Roentgenol.* 26: 145, 335 and 493, 1931.

2. Hall, C. C., and Whipple, G. H.: Roentgen Ray Intoxication, *Am. J. M. Sc.* 157: 453, 1919.

3. Warren, S. L., and Whipple, G. H.: Roentgen Ray Intoxication, *J. Exper. Med.* 38: 713, 1923.

4. Moon, V. H., and Morgan, D. R.: Shock: The Mechanism of Death Following Intestinal Obstruction, *Arch. Surg.* 32: 776 (May) 1936.

the urine, feces and vomitus. This blood was derived from capillary hemorrhages in the mucosae and was not of sufficient amount to affect significantly the total blood volume. Concentration of the blood was manifested by a progressive increase in the hemoglobin content and in erythrocyte counts. These symptoms progressed

tion showed capillovenous congestion and numerous capillary hemorrhages. The serous surfaces and the gastrointestinal mucosa were deeply congested. There was bloody fluid in the intestinal lumens, and the lining had the appearance of purple velvet. The evidences of damage were most pronounced in the mucosa of the small bowel. Microscopic examination showed varying degrees of degeneration and necrosis of the epithelium and congestion of the capillaries and venules. The liver and kidneys showed parenchymatous degeneration and congestion. The spleen was contracted and bloodless. No significant changes were seen in other organs. These are the characteristic appearances of the viscera in shock from all causes excepting hemorrhage.⁶

A dose of 1,860 roentgens given as described caused death regularly in three to five days. One dog (295) given 1,116 roentgens showed moderate illness and hemoconcentration followed by recovery. A dog (296)



Fig. 1.—Lungs of a dog after death by radiation sickness. All parts of the lung and the serous surfaces show diffuse capillovenous congestion.

and death from circulatory failure occurred usually within twenty-four hours after the onset of illness.

It has been shown⁵ that hemoconcentration is the earliest and most significant clinical sign of shock arising from any cause whatsoever. Accordingly, counts of red cells and hemoglobin estimates were made before irradiation for comparison with subsequent data. There was no disturbance in the state of the blood until the onset of symptoms. At this point hemoconcentration appeared regularly and progressed commensurately with the severity of the symptoms. The hemoconcentration ranged from 15 to 50 per cent. The signs of illness and other data in a typical experiment,

TABLE 1.—Data Concerning Dog 293

Date	Signs of Illness	Temperature	Hemoglobin, Mg. per 100 Cc.	Leukocytes	Erythrocytes
5/1	Normal, before treatment	101.2	12	11,400	5,800,000
5/2 5:00 p. m.	Normal, before treatment	101.2	12	12,200	5,830,000
Irradiated 5:00 p. m.					
5/3 8:30 a. m.	No signs of illness	101.0	13	12,100	6,180,000
4:00 p. m.	No signs of illness	101.5	13	11,100	6,440,000
5/4 9:00 a. m.	Vomited during night	101.0	13	12,350	6,200,000
4:00 p. m.	Eats only part of food	101.4	13	9,800	6,180,000
5/5 9:00 a. m.	Vomited during night	101.0	13	10,000	6,000,000
4:30 p. m.	Refuses food	101.0	13	10,900	6,070,000
5/6 8:30 a. m.	Urine scanty, blood tinged; vomitus contains blood	101.0	18	6,250	7,230,000
12:00 m.	Diarrhea blood tinged; pulse rapid, extremities cold, dog very ill	102.0	18+	4,000	7,950,000

The animal was given 2,772 roentgens over the abdomen May 2, 1939 and died at 12:30 p. m., May 6.



Fig. 2.—Section of lung in figure 1, showing marked capillovenous congestion and edema.

dog 293, the first animal treated, are shown in table 1. The results of abdominal irradiation were concordant in all animals. These are summarized in table 2.

Postmortem examination showed a diffuse congestion of the viscera. The lungs were mottled and cyanotic in appearance (fig. 1). Microscopic examina-

given 1,488 roentgens showed more serious illness and hemoconcentration. It lost 20 per cent of body weight and died of terminal pneumonia thirteen days later. Thus 1,860 roentgens, applied to the abdomen, appeared to be the approximate lethal dose for dogs.

In one group of 7 dogs, radiation was given over the liver, the lower part of the abdomen being protected by lead shields. In 1 of these animals (331) fatal illness accompanied by hemoconcentration developed. The post-mortem observations were the same as those described previously. In another (333) slight illness developed accompanied by 12 per cent hemoconcentration, but the dog recovered. The remaining dogs in this group showed no hemoconcentration or evidence of illness. In 2 dogs (336 and 337), the liver and adrenals were shielded and the irradiation confined to the lower abdomen. These animals manifested typical reactions accompanied by hemoconcentration and followed by death. No illness resulted in 2 dogs (297 and 298) given 1,860 roentgens and 3,720 roentgens respectively

5. Moon, V. H.: Occurrence and Clinical Significance of Hemoconcentration, Ann. Int. Med. 13: 451, 1939.
6. Moon, V. H.: Shock and Related Capillary Phenomena, New York, Oxford University Press, 1938.

over the chest. These experiments corroborate the observations of Whipple and of others that the intestinal mucosa is more sensitive than other tissues to the injurious effects of irradiation.

One group of dogs (302, 303, 304 and 305) were treated as described but were killed at intervals of twenty-four to eighty-eight hours after exposure. This was done in order to make examinations of the intestinal mucosae at earlier stages after the injury. Sections of bowel and of other tissue were placed in fixative within five minutes of the death of the dogs.

leukopenia develops in cases of severity, while in the early stages and in sublethal degrees of shock, leukocytosis is often seen. In most of the experiments with fatal outcome, the number of leukocytes declined before death. In several nonfatal experiments there was a sharp rise in the leukocyte counts.

COMMENT

Some of the theories offered in explanation for radiation sickness have been purely conjectural and unsupported either by logic or by evidence. Thus

TABLE 2.—Summary of the Results of Experiments on Radiation Sickness

Dog	Dose, Roentgens	Area	Illness Begun	Hemoconcentration	Leukocytes	Results
293	2,772	Abdomen	In about 48 hours	Began 48 hours Maximum: 50%	11.4 M, decline to 4.0 M	Death, 91 hours
294	1,860	Abdomen	After 60 hours	Began 24 hours Maximum: 25%	14.0 M, decline to 4.0 M	Death, 87 hours
295	1,116	Abdomen	After 60 hours	Began 42 hours Maximum: 16%	10.9 M, decline to 9.0 M	Moderate illness, recovery
296	1,488	Abdomen	After 84 hours	Began 90 hours Maximum: 26%	19.0 M, decline to 4.3 M, rose to 13.6 M	Severe sublethal shock; death, 322 hours
299	1,860	Abdomen	After 88 hours	Began 88 hours Maximum: 21%	5.7 M, decline to 2.5 M	Death, 96 hours
301	1,860	Abdomen	After 84 hours	Began 64 hours Maximum: 20%	9.5 M, decline to 6.1 M	Death, 111 hours
306	1,852	Abdomen	After 64 hours	Began 48 hours Maximum: 33%	8.1 M, rose to 15.2 M, decline to 5.3 M	Death, 115 hours
324	2,160	Abdomen	After 48 hours	Began 48 hours Maximum: 21%	10.0 M, decline to 5.0 M	Death, 67 hours
329	2,160	Abdomen	After 80 hours	Began 88 hours Maximum: 30%	No data	Death, after 4 days
302	1,860	Abdomen	None	None	7.0 M, rose to 8.0 M	Killed for examination after 60 hours
303	1,860	Abdomen	None	None	17.0 M, decline to 10.0 M	Killed after 40 hours
304	1,860	Abdomen	After 48 hours	Began 48 hours Maximum: 16%	10.0 M, rose to 18.8 M	Killed after 88 hours, when very ill
305	1,860	Abdomen	None	None	No significant change	Killed for examination after 24 hours
297	1,860	Chest	None	None	13.7 M, decline to 6.8 M, rose to 10.4 M	Recovery
298	1,860	Chest	None	None	10.0 M, decline to 5.4 M	Recovery
315	926	Liver only	None	None	No change	No signs of illness
318	1,852	Liver only	None	None	No change	No signs of illness
320	2,778	Liver only	None	None	No change	No signs of illness
322	2,778	Liver only	None	None	No change	No signs of illness
331	1,852	Liver only	On 4th day	Began 96 hours Maximum: 27%	No data	Death after 4 days
333	1,852	Liver only	Moderate, 72 hours	Began 72 hours Maximum: 12%	No change	Recovery
336	1,852	Liver only	None	None	8.5 M, rose to 10.6 M	No signs of illness
335	1,852	Abdomen only; adrenals shielded	After 48 hours	Began 36 hours Maximum: 20%	No data	Death about 60 hours
337	1,852	Abdomen only; adrenals shielded	After 40 hours	Began 36 hours Maximum: 30%	10.9 M, decline to 9.0 M	Death about 60 hours

Study of such sections confirmed the findings of Whipple and his associates, who made similar studies. The evidences of damage were most obvious in the mucosa of the small bowel (fig. 3). The epithelium lining the crypts and covering the villi showed all stages of disintegration and destruction. Some crypts contained nuclear and cellular debris; others were empty. Some of the villi retained their epithelial covering while that in the crypts showed necrosis and disintegration. Other villi were completely denuded of their epithelial covering (fig. 4).

In most instances there were no significant changes in the rectal temperature. The leukocyte reactions varied in a fashion similar to those described in clinical and in experimental shock.⁶ It has been shown that

the suppositions that such illness results from the inhalation of ozone or other gases generated by the electric apparatus or that the patient is allergic to roentgen rays deserve little attention; likewise, the supposed effects of static electricity in the body, the presence of a "roentgen toxin" in the blood, the effect of glycogen depletion and endocrine imbalance.

Other attempts to explain the phenomena were based on similarities to known conditions. Thus the resemblance of radiation sickness to acute poisoning, to the effects of burns, of physical trauma, of profound intoxication, of anaphylaxis or of intestinal obstruction were comparisons based on clinical observations. Radiation sickness has items of pathologic physiology in common with each of those conditions, and the clinical features

present no characteristic differences. An increase in the nonprotein nitrogen, hydrogen ion concentration, dextrose, phosphorus and potassium content of the blood and a decrease in the chloride content, oxygen content, metabolism and in the total blood volume are found in the conditions mentioned, also in radiation sickness and in shock from various causes.

Many years ago, Edsall and Pemberton⁷ interpreted radiation sickness as a toxic reaction to products of cellular disintegration. Later Hall, Warren and Whipple conducted extensive experiments on the subject and came to the conclusion noted earlier in this paper. Rolleston¹ reviewed the various proposed explanations and found that the weight of evidence favored acute toxemia from products of cellular injury or destruction. These products, as shown by Lewis, cause dilatation and increased permeability of capillaries. This effect, if extensive, results in decreased blood volume, increased concentration of the blood, reduced volume flow and reduced delivery of oxygen, producing tissue anoxia, and thereby the mechanism of shock is initiated.⁶

Forfota and Karády⁸ cited numerous observations on the resemblance between radiation sickness and shock. They commented on the demonstrations by Ebbecke,⁹ Lewis¹⁰ and others that cellular injury of any kind causes the release of H substances which affect capillaries in the same fashion as does histamine. They compared the effects of histamine and of experimental radiation in dogs and reported that examinations of the blood showed the same essential variations from normal.

Our results have confirmed those of the authors cited; furthermore, our interpretations are similar. Exposure of the abdominal viscera to massive doses of roentgen irradiation causes delayed necrosis of the intestinal

parallel the recognizable epithelial injury. The resulting symptoms are those regularly seen in shock from other causes. The condition is accompanied by progressive hemoconcentration, and the visceral changes seen post mortem are characteristically those of circulatory failure of the shock type.



Fig. 2.—Mucosa of a dog (302) killed sixty-six hours after roentgen irradiation. The cells of the glands have disintegrated and the epithelial covering.

These experiments have a significant bearing on the mechanism of shock. Some writers assign this to local hemorrhage and loss of fluid or to sympathoadrenal hyperactivity and disregard absorption of products from damaged tissues as a factor. Injury to the intestinal mucosa by irradiation is like injury by heat or other physical agents, but with these differences: it produces delayed necrosis and causes no pain or emotional reactions. Hence such injury eliminates hemorrhage, anesthesia, pain, emotional reactions and sympathoadrenal hyperactivity as factors. In such experiments it appears that the disturbances of circulation result solely from absorption, independently of other factors.

SUMMARY

Exposure of the abdomen to high voltage roentgen irradiation causes physiologic disturbances like those of shock arising from other causes. This is accompanied by progressive hemoconcentration. The visceral findings post mortem are those characteristic of shock regardless of its origin. Deep roentgen irradiation causes delayed necrosis of the intestinal mucosa. The resulting signs of illness are likewise delayed in onset.

Irradiation provides a new method for inducing shock by injury to living tissues. This method eliminates the confusing effects of other factors including pain, emotional reactions, sympathoadrenal hyperactivity, hemorrhage and anesthesia.

ABSTRACT OF DISCUSSION

DR. CHARLES L. MARTIN, Dallas, Texas: Radiation sickness is of great interest to me because I have participated in a number of studies made on irradiated animals during the past twenty years. In 1919 Dr. Willey Denis and I investigated the blood chemistry of rabbits killed with large doses of roentgen rays given over the abdomen at the Massachusetts General Hospital. The blood concentration described by the authors was noted and was ascribed to a dehydration resulting from a severe diarrhea and an anorexia. The animals refused food and water and showed a suppression of urination and a loss of weight. It is my impression that this syndrome is not the same as that seen in shock. Small animals may be killed with doses of roentgen rays which produce no demonstrable change in the intestine, and death must be due to chemical or

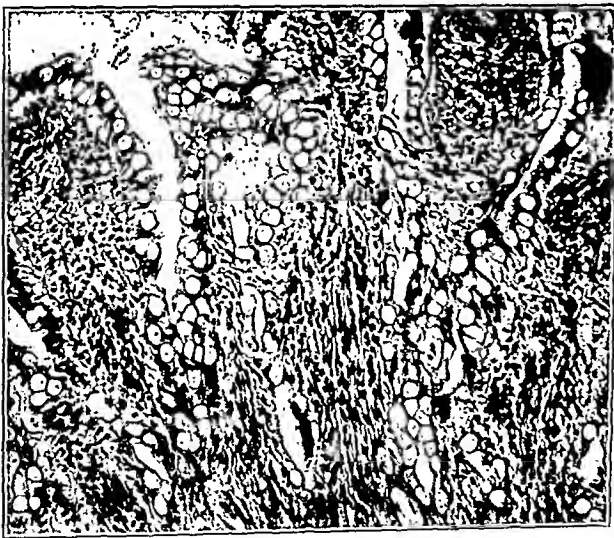


Fig. 3.—Mucosa of the small bowel of a dog (305) killed twenty-four hours after abdominal irradiation. Mucoid degeneration of the epithelial lining is present.

mucosa. Absorption of cytoplasmic material from this damaged tissue seems to produce the physiologic disturbances noted. The severity of the illness seems to

7. Edsall, D. L., and Pemberton, R.: Nature of the General Toxic Reaction Following Exposure to X-Rays, *Am. J. M. Sc.* **133**: 426, 1907.
8. Forfota, E., and Karády, S.: Ueber die biologische Allgemeinwirkung der Röntgenstrahlen vom Gesichtspunkte einer durch Histamin oder ähnlich wirkende Substanzen verursachten Schockwirkung, *Strahlentherapie* **59**: 258, 1937.
9. Ebbecke, U.: Die lokale vasomotorische Reaktion der Haut und der inneren Organen, *Arch. f. d. ges. Physiol.* **169**: 1, 1917; *Capillarerweiterung, Urticaria und Schock*, *Klin. Wchnschr.* **2**: 1725, 1923.
10. Lewis, T.: *The Blood Vessels of the Human Skin and Their Responses*, London, Shaw & Sons, Ltd., 1927.

physiologic changes. Experiments that Dr. Fred Rogers and I reported a good many years ago proved that damage to the adrenal glands did not produce the fatal outcome. Although the mechanism of the process is still not understood, some work done recently at Baylor University with Dr. Walter Moursund convinces me that a vitamin B deficiency is one of the factors involved, and large doses of thiamine hydrochloride are of real value in the treatment of many patients suffering from radiation sickness. The Cincinnati group has been interested in this phase of the problem and I am told that they will soon bring forth some new helpful information. Certainly this field of investigation is still a fertile one.

DR. DAVID I. MACHT, Baltimore: In 1939 I published a paper on the blood pharmacology after exposure to roentgen rays. By using special pharmacologic methods which I have developed and have been using for some twenty years, in which living plant test objects are used for testing toxicity of the blood, I have examined the normal blood serum of various animals—dogs, cats, rabbits, guinea pigs, rats, mice and other animals—before and after exposure to various doses of roentgen rays. The results are interesting. One can show quantitatively and by experimental means (phytopharmacology is what I call this method) that there is a toxin, or at least a toxic reaction, developed in the blood, not immediately but twenty-four hours after exposure to the rays. That declines after a few days, depending on the dose. I thought it necessary to make these experiments on normal animals before going to clinical observations, and during the past two years I have collected some data of a clinical nature. I have examined by the same method twenty clinical cases, blood specimens from the Johns Hopkins X-Ray Clinic, some of malignant disease and others of benign conditions treated with roentgen rays, and all of them showed this toxic reaction. Furthermore, I have examined the blood of apparently normal persons, namely, roentgen ray specialists, physicians, nurses and workers in the roentgen ray laboratories. I took serums and tested them by phytopharmacologic methods, and all of them showed a toxic reaction. That is remarkable, because they were not complaining of anything, but it shows that roentgen rays do produce intricate biologic changes. I wish to add that such work as is being done by Wallace and Moon and their co-workers, and perhaps these attempts of mine on pharmacologic lines, are the kind necessary for combating or at least considering methods for rational therapeutic treatment of roentgen ray sickness, because these are the best objective criteria by which one can measure the blood or pathologic changes and tell whether the method of treatment is really effective or imaginary.

DR. ROSS GOLDEN, New York: Dogs, like human beings, may be made ill with very moderate doses of roentgen rays. In the winter of 1920-1921, in trying to investigate the question of acidosis as a cause of roentgen sickness, I had occasion to irradiate the upper abdomen of dogs. I found that by giving about what I thought was a human erythema dose at that time, probably somewhere around 400 or 500 roentgens, the dog could be made to vomit consistently about a half hour after irradiation was given. That could be kept up for a number of weeks. These dogs became emaciated and finally died, but it was three or four months after the inauguration of the experiments. These immediate effects on the dogs resembled clinical roentgen sickness, and it is rather difficult for me to correlate them with the authors' findings. I have seen patients get sick with 75 roentgens over the chest. I am wondering whether the authors could say something about the relationship of these moderate doses to obvious roentgen ray sickness. Perhaps they have some ideas about the immediate reaction, not a delayed reaction, which must be responsible for it.

DR. MOSES F. LUBELL, Waterville, Maine: I should like to ask the authors and Dr. Wallace what therapeutic agents they now recommend and whether they have had any experience with nicotinic acid.

DR. ROBERT P. NOBLE, Raleigh, N. C.: Why is it that some people do not get sick from small doses?

DR. VIRGIL H. MOON, Philadelphia: Let it be emphasized that we were interested in the acute manifestations. We made

no observations on the late or delayed results such as nutritional or metabolic deficiencies. We were interested in the syndrome as described that manifested itself by nausea, vomiting, diarrhea, low blood pressure, prostration and so on. We have not conducted any studies on the minor degrees either of that syndrome or of the late effects which lesser dosage of roentgen rays would produce at longer intervals of time. I was interested in Dr. Macht's observation concerning a toxemic factor. You will recall that the theory of traumatic toxemia of shock held the attention of medical men for a number of years after the World War. Later that idea was replaced to some extent by evidence which now has been discredited, and the original evidence has been confirmed. We now believe that shock resulting from trauma, from burns, from prolonged surgery or, as in this instance, from severe damage to the gastrointestinal tract by roentgen rays is due to some agent which exerts toxic effects on the endothelium of the circulatory system; and so, Dr. Macht, the idea of a toxic substance or toxic reaction is not out of our picture at all. I am deeply interested in the phytopharmacologic reaction that you mentioned, because certain other workers have used that test in histamine shock and in shock produced by other agents. They demonstrated by phytopharmacologic methods a toxic effect on young growing plants. In reply to Dr. Golden, our experiments were not designed to test the sublethal or late effects of irradiation. That is an important subject, but it does not have a direct bearing on this syndrome of circulatory collapse which develops incident to deep abdominal irradiation. Dr. Lubell, we have undertaken no therapeutic experiments either. We were concerned with the mechanism and have made no attempts at treatment. I am sure we will all agree with you, Dr. Noble; we should all like to know why some people do not get sick under the same circumstances which provoke illness in the average or normal person.

THE VIRUS OF POLIOMYELITIS IN STOOLS AND SEWAGE

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AND

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During the past two years it has become increasingly apparent that the virus of poliomyelitis may be readily isolated from stools of patients with poliomyelitis. Many reports¹ now testify to the ease with which this may be accomplished, not only from the stools of patients with the paralytic type² but also from those of patients with the common abortive type.³ In fact the stool method has quickly found its place in the study of this disease, and during this short period of time our knowledge of human carriers has been considerably enhanced. Already Lépine⁴ in Paris has followed one child con-

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Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninety-First Annual Session of the American Medical Association, New York, June 14, 1940.

This investigation was aided by a grant from the Committee on Virus Research of the National Foundation for Infantile Paralysis, Inc. The following persons aided in this study: Drs. C. S. Culotta, New Haven; Sven Gard, Stockholm, Sweden; J. G. Molner, Detroit; C. E. Symons, Buffalo, and H. E. Traver, North Woodbury, Conn.

1. Harmon, P. H.: The Use of Chemicals as Nasal Sprays in the Prophylaxis of Poliomyelitis in Man, *J. A. M. A.* **109**: 1061 (Sept. 25) 1937. Kramer, S. D.; Hoskwith, B., and Grossman, L. H.: Detection of the Virus of Poliomyelitis in the Nose and Throat and Gastrointestinal Tract of Human Beings and Monkeys, *J. Exper. Med.* **69**: 49 (Jan.) 1939. Trask, Vignee and Paul.² Kling, Olin, Magnusson and Gard.³ Lépine, Sédallian and Sautter.⁴ Kramer, Gilliam and Molner.⁵

2. Trask, J. D.; Vignee, A. J., and Paul, J. R.: Poliomyelitis in Human Stools, *J. A. M. A.* **111**: 6 (July 2) 1938. Harmon.¹

3. Kling, C.; Olin, G.; Magnusson, J. H., and Gard, Sven: Nouvelles recherches sur l'élimination du virus poliomyélique par matières fécales, *Bull. Acad. de méd., Paris* **121**: 826 (June 13) 1939. Trask, Vignee and Paul.² Lépine, Sédallian and Sautter.⁴ Kramer, Gilliam and Molner.⁵

4. Lépine, Pierre; Sédallian, P., and Sautter, V.: Sur la présence du virus poliomyélique dans les matières fécales et sa longue durée d'élimination chez un porteur sain, *Bull. Acad. de méd., Paris* **122**: 141 (July 18) 1939. Poliomyelitis, Foreign Letters (Paris), *J. A. M. A.* **113**: 1046 (Sept. 9) 1939.

valescent from abortive poliomyelitis who harbored the virus in the intestinal tract as long as one hundred and twenty-five days, and Kramer and his co-workers,⁵ more recently in Detroit, have given a convincing report of "healthy intestinal carriers" in this disease. These observations point the way toward at least two lines of investigation which should throw light on the manner in which poliomyelitis spreads. One of these lines of approach lies in the clinical use of examination of the stool as a diagnostic test for detecting certain patients with poliomyelitis who have been overlooked and carriers of the virus of poliomyelitis; the other concerns the fate of the virus after it leaves the patient and "leaves the stool," as it were. For, obviously, if the virus is in human feces it must at least enter sewage, and the next epidemiologic query is How readily may it be demonstrated there?

A few investigations along both of these lines of approach will be reported in this paper. They include not only the use of the stool examination for the study of familial epidemiology in poliomyelitis but also some observations on the virus content of sewage.

TECHNIC OF STOOL EXAMINATIONS

Our procedures for the detection of the virus of poliomyelitis, together with the results of this type of examination on one hundred and eleven stools, are described in detail elsewhere.⁶ Briefly, the method has consisted in the dilution of a relatively small specimen (15 to 25 Gm.) of feces with sterile water. To this suspension 15 per cent ether is added for bactericidal purposes, and the suspension is allowed to stand overnight. About 30 cc. of this suspension is centrifuged at moderate speed for half an hour and from 12 to 20 cc. of the middle layer is then injected intraperitoneally into one or more monkeys. The most important aspect of the test, however, has been the subsequent care of the inoculated monkeys. Daily temperature and exercise records have been kept on these

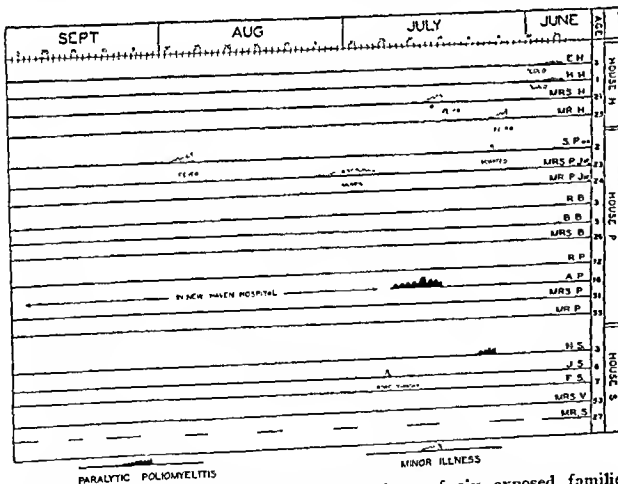


Fig. 1.—Schematic diagram of the members of six exposed families who lived in three houses. Each of the nineteen persons is designated by a horizontal line; the ages appear at the right. Legends on these lines mark the onset, duration and type of the various illnesses which occurred among this group during the summer of 1939.

animals for a period of four weeks, unless it seemed advisable to kill them earlier. If any monkey showed signs either definite or suggestive of poliomyelitis it

was killed at what seemed an appropriate time. Histic sections were examined from the medulla and from the cervical, thoracic and lumbar regions of the spinal cord of all killed monkeys, and if there were indications of poliomyelitis an immediate attempt was made to pass the virus to another monkey. If an animal died

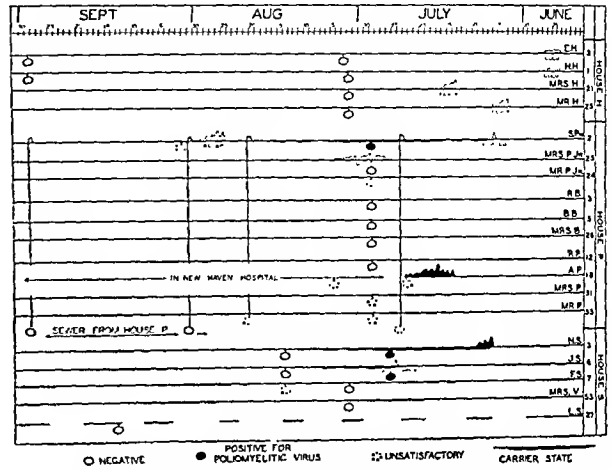


Fig. 2.—The same diagram as in figure 1, although more legends have been added indicating the results of stool tests and the estimated periods during which some of the children were intestinal carriers of the virus of poliomyelitis. Tests made on sewage taken from house P. are also shown.

during the four weeks of observation from some cause other than poliomyelitis, the test was considered unsatisfactory. In the series of stool tests reported in this paper, premature deaths of the inoculated animals were, unfortunately, unusually frequent; among 31 inoculated monkeys it occurred ten times. Criteria for a positive result will be taken up later in this report under the section which deals with the detection of the virus of poliomyelitis in sewage.^{6a}

CLINICAL OR FAMILIAL OBSERVATIONS

The present report describes the use of stool tests among a small group of persons during a rural epidemic in western Connecticut which occurred in the summer of 1939. Attention was first called to this situation in mid-July when A. P., a girl aged 18 years, was admitted to the New Haven Hospital with severe paralytic poliomyelitis. She came from a farm in rural Connecticut and was the first patient with the disease to be reported from that part of the state. Another patient with recent acute paralysis (N. S., aged 3 years) was soon discovered in the same community, and presently it became apparent that all the members of six related families who lived in three houses there had been exposed. This group was composed of nineteen persons, and besides the two with paralytic poliomyelitis there were several others who had acquired minor illnesses during late June and early July. The clinical events are best shown in the form of a diagram which gives the composition of the group and relates the various illnesses one to another in point of time (fig. 1).

Two of the patients with minor illnesses (Mr. and Mrs. H.) had symptoms compatible with those of abor-

S. Kramer, S. D.; Gilliam, A. G., and Molner, J. G.: Recovery of the Virus of Poliomyelitis from the Stools of Healthy Contacts in an Institutional Outbreak, Pub. Health Rep. 54: 1914 (Oct. 27) 1939.
6. Trask, J. D.; Paul, J. R., and Vignee, A. J.: Poliomyelitic Virus in Human Stools, J. Exper. Med. 71: 751 (June) 1940.

6a. Since this paper was written, Howe and Bodian (Untreated Human Stools as a Source of Poliomyelitis Virus, J. Infect. Dis. 66: 198 [May-June] 1940) have found it advantageous to use nasal instillations of unetherized fecal suspensions for detecting virus in stools. This we have corroborated in a small series tested during the summer of 1940. At present we use both the intranasal instillation of fresh stool suspension and the intraperitoneal inoculation of centrifuged, etherized material. Monkeys thus inoculated require at least five weeks of observation, instead of four.

tive poliomyelitis,⁷ namely fever, headache and malaise of two or three days' duration. In some of the other cases the symptoms were equivocal; one was a case of mumps (the last of an epidemic of this disease which had been present in one of the three households for some weeks).

To unravel this complex situation we set out to determine by stool tests how many cases of poliomyelitis could actually be detected in this group, how many carriers (either convalescent or healthy) could be detected and whether these facts could be integrated so far as the manner of spread of the disease in this group was concerned. In securing the necessary material we were fairly though not completely successful, for during late July and early August, 19 stool specimens were obtained from 18 of the persons mentioned; a few more specimens were secured later in the summer. The whole series of tests totaled thirty-one. An unfortunate shortage of monkeys during July and August made it necessary to pool many of these specimens, so that material from 2 or 3 persons often went into 1 monkey, and if this animal came down, tests were then made on the individual specimens.

The clinical circumstances under which each specimen was obtained appear in figure 2. Here it will be seen that the first stool giving a positive result was from the 3 year old child N. S. (the first patient with paralysis in the epidemic), who had reached the twenty-first day of her disease when the first specimen of her stool was obtained. Later, on the thirty-ninth day of her disease, her stool specimen was normal. The next stool positive for poliomyelitis was from J. S. (the brother of N. S.), whose illness was mild, and without this laboratory finding one would have been inclined to regard his sore throat and slight fever as trivial. On the second day of this illness his stool contained the virus; later, on the twenty-first day, it was normal. The third patient whose stool gave positive laboratory evidence was a 2 year old boy, S. P. (the nephew of the 18 year old girl A. P.). He gave no definite history of a preceding illness except an attack of vomiting three

unknown duration, such as those recently described by Kramer, Gilliam and Molner.⁵ The distinction between the two would indeed be slight. Arbitrarily, however, we have called him a convalescent carrier.

A glance at figure 2 indicates that besides the 2 paralytic patients (N. S. and A. P.) and the 2 adults with probable abortive poliomyelitis (Mr. and Mrs. H.) identified on the basis of symptoms, the minor illness of J. S. also turns out to be abortive poliomyelitis, and there is perhaps still another if we include S. P. These last 2 are diagnosed on the basis of laboratory findings. This gives a total of 5 or 6 cases, and we find that they occurred in three groups so far as their date of origin is concerned. Two (or 3) began on July 3 and 7, 2 on July 14 and 1 on July 24, giving three waves of illness separated by intervals of about ten days—which is the usual average incubation time given for poliomyelitis. The first 2 patients (N. S. and Mr. H.) may well have been exposed simultaneously to the same unknown source. This is plausible because the entire H. family together with the first patient (A. P.) was visiting in house S. during the last of June. Most of the subsequent cases possibly might have resulted from the same exposure, but it seems more reasonable to regard them as secondary and tertiary cases.

Up to this point this epidemic was a family affair, but subsequently the epidemic took a different turn. On the basis of the reports to the state department of health, there was a case about this time in Bristol and there were 3 cases in Waterbury, to be followed by 14 more cases from the western third of Connecticut. Their geographic relationship to the small focus of cases in figure 3. Most of the patients were admitted to the New Haven Hospital and most of their families were interviewed by us. In but 2 of the cases was there any history of association with the P. farm. This distributional relationship which the epidemic bore to the Naugatuck River (which drains off sewage and industrial waste from the city of Waterbury) implied that some factor existed in this epidemic which had to do with this watercourse. River epidemics like this one are not new or unique. Attention has been called to them in Sweden, Germany and Rumania by Kling,⁸

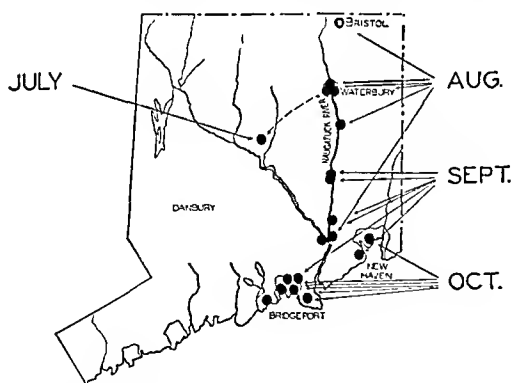
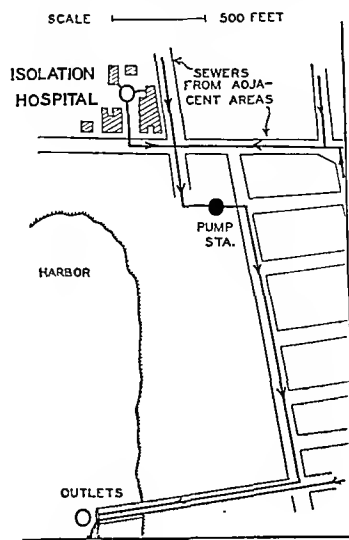


Fig. 3.—Map indicating the location of the building project downstream from house P.

weeks before. It is a question whether this indicates that the infant was a convalescent carrier early in the fourth week of his disease or a healthy carrier of

7. The terminology used for clinical poliomyelitis has been subject to frequent revision. Three terms are used here: paralytic poliomyelitis, abortive poliomyelitis and minor illness. The term minor illness is used in a special sense. It is applied here to those brief illnesses which occur so commonly among children during an epidemic of poliomyelitis, and it may be synonymous with the term suspected abortive poliomyelitis. Such minor illnesses may actually turn out to be abortive poliomyelitis, but at present they can be identified with certainty only if the virus of poliomyelitis is isolated from the patient.



○ SEWER TESTED—RESULT NEGATIVE
● SEWER TESTED—POLIOMYELITIC VIRUS PRESENT

Fig. 4.—Map of the southwestern corner of the state of Connecticut on which are marked all cases of poliomyelitis (19) which were reported from the western third of the state in 1939. In July there was only 1 case (A. P.), for the illnesses of N. S. and S. P. were not reported to the state department of health as definite cases of poliomyelitis. The broken line pointing to the city of Waterbury indicates a possible association between the July case (A. P.) and one of the Waterbury cases (C. G.). The distribution of the cases along the Naugatuck River and the progression of the epidemic down the river are noteworthy.

8. Kling, C.: Recherches sur l'épidémiologie de la poliomyélite, Acta Soc. Med. Suecicae 55: 23, 1929.

but they have received little notice of late in this country, although Caverly⁹ in 1894 described his classic epidemic as being largely restricted to the Otter River valley of Rutland County, Vt. No explanation is, however, offered as to the part that watercourses may actually play in spreading the disease. Tests of water from the Naugatuck River for virus in this epidemic were not made.^{9a} Nevertheless, from tests made elsewhere during the summer of 1939 it has become apparent that the virus of poliomyelitis may be present in sewage and that it may be transported for short distances by flowing sewage.

THE VIRUS OF POLIOMYELITIS IN SEWAGE

During the summer of 1939 there were several opportunities to study the natural presence of the virus of poliomyelitis in sewers during three large urban epidemics, viz. in Charleston, S. C., in Detroit and in Buffalo.¹⁰ Our experiences so far as the positive results are concerned will be briefly described here.

Primarily a few more words about the technical procedures and the interpretation of the tests are again necessary. The method for examining sewage for the virus of poliomyelitis is based essentially on that used in examination of the stool. It has been described in more detail in another paper.¹¹ Samples of sewage (usually amounting to 4 liters) were collected in the

Results of Tests on Sewage from Hospital K, Showing the Number of Inmates with Poliomyelitis at the Time of Each Test

Date	Poliomyelitis Virus in Hospital Sewer	No. of Hospitalized Patients with Poliomyelitis
August 10.....	+	37
August 16.....	+	65
September 7.....	+	33
October 19.....	—	9
November 23....	—	3

morning. The specimens were allowed to settle for about two hours or longer and the supernatant fluid was then discarded. To the mid-layer (amounting to about 750 cc.) 10 to 15 per cent ether was added. The etherized specimens were transported (usually by airplane) to our laboratory in New Haven, and usually the day after their collection a dose of about 20 cc. was injected intraperitoneally into 1 or more rhesus monkeys. These animals were subsequently followed in the manner described under stool tests.

IDENTIFICATION OF THE VIRUS

One of the first questions that invariably arises when claims are made that the virus of poliomyelitis has been isolated from any unusual or extraneural source is How certain is it that it is the virus of poliomyelitis? Criteria on which the answer to this question is based will probably change from year to year, but those which we have used to define a positive result from sewage or stools are that the strain must fulfil at least three

9. Caverly, C. S.: Preliminary Report on an Epidemic of Paralytic Disease Occurring in Vermont, in the Summer of 1894, Yale M. J. 1:1 (Nov.) 1894.

9a. Since this article was written we have had occasion to follow another small local epidemic of poliomyelitis which occurred during the summer of 1940. Again it was more or less restricted to this same river valley. During the epidemic period a few tests of the river water, which was heavily contaminated with sewage, were made. Poliomyelitis virus was not detected.

10. Dr. Leon Banov, health officer of Charleston; Dr. H. F. Vaughan, commissioner of health, Detroit, and Dr. F. E. Fronczak, health commissioner, Buffalo, gave permission for these studies. These health officers and the members of their staffs, and also Mr. G. E. Symons of the Buffalo Sewer Authority, assisted in this work.

11. Paul, J. R.; Trask, J. D., and Gard, Sven: Poliomyelitic Virus in Urban Sewage, J. Exper. Med. 71:765 (June) 1940.

qualifications: 1. It must produce a "clinical picture" in the inoculated monkey which is compatible with that of experimental poliomyelitis, viz. after an appropriate incubation period a train of characteristic symptoms develops usually exemplified by fever, excitement, tremor, ataxia, weakness and paralysis, the latter being generally associated with a fall in temperature. 2. When the animal is killed, lesions typical of experimental poliomyelitis must be found in the region of the gray matter of the spinal cord, in lumbar as well as in cervical levels. These lesions should be "unequivocal," and besides their presenting evidence of neuronophagia there must be perivascular infiltrations with mononuclear cells. 3. Passage of the strain to a second monkey must be successfully accomplished, in the course of which criteria 1 and 2 must again be fulfilled. A fourth criterion is also valuable. It was used in almost all the sewage strains and consists in the injection of the strain (or the suspected material) into small laboratory animals such as rabbits, guinea pigs and mice. These animals should not acquire encephalomyelitis as a result of this inoculation. This last test should be helpful in differentiating the virus of poliomyelitis from that of lymphocytic choriomeningitis, equine encephalomyelitis and other viruses capable of producing an encephalitis or myelitis in these species, but it may be mentioned here that we have never succeeded in isolating from sewage any neurotropic virus other than that of poliomyelitis.

POSITIVE TESTS IN URBAN SEWAGE

During the summer of 1939, sixty-six tests were made on sewage collected in the course of the three urban epidemics just mentioned. Of these, thirteen were unsatisfactory, forty-five gave negative results, one gave a questionable result, and six gave positive results in that the three criteria were met, and one was positive so far as it went, for only the first two criteria were tried. The six giving positive results represented 4 different samples of sewage from two different sites. A strain from each of these 4 samples from the two sites fulfilled all four of the diagnostic criteria which we have considered useful in the identification of the virus of poliomyelitis.

In general the circumstances under which these few positive and many negative results were obtained indicated that it has been easier to isolate the virus of poliomyelitis from sewage collected in the vicinity of hospitals with poliomyelitic patients as inmates than from that gathered elsewhere. In the table five tests are recorded on sewage from one of the isolation hospitals in the city of Detroit. These tests were made on samples collected from a sewer pipe in the basement of the isolation building. The specimens here obtained on five occasions consisted of moderately cloudy or soapy water with a sediment of dark particles. Fecal material was not recognized as such grossly, but in spite of this "unpromising" looking material the virus was found repeatedly in this site. The relationship of the positive tests to the contemporaneous hospital populations appears in the table.

Besides the fact that the virus may be present in sewage, two other facts were determined: (a) that the total content of the virus of poliomyelitis in sewage may be large and (b) that the virus is stable enough to be transported by sewage for at least an eighth of a mile. Both of these facts were ascertained from tests¹² made

12. Brief details of these tests are recorded in a preliminary note (Paul, J. R.; Trask, J. D., and Culotta, C. S.: Poliomyelitic Virus in Sewage, Science 90:258 (Sept. 15) 1939).

from a pumping station in Charleston, S. C., during the recent epidemic there which lasted from April through July 1939. The circumstances are best shown by a diagram of the sewage system in the immediate vicinity of the pumping station where this positive specimen was secured in mid-July (fig. 4). (Negative specimens were obtained from this site in early August and in October.) Two monkeys were inoculated intraperitoneally with this material in doses of 120 and 125 cc. respectively. In both of these animals poliomyelitis developed, and later a third monkey was infected with a concentrate made from 100 cc. of the same specimen.¹³ Large as these three doses might have been, they were but "drops in the bucket" compared to the total volume of sewage pouring through this station, estimated at the rate of 470 gallons per minute. Theoretically, then, one could calculate that more than eighteen thousand doses of the virus of poliomyelitis infective for the monkey were passing through this site each minute of the hour in which the specimen was collected.

But of equal importance to the amount of virus in this large volume of sewage is the question of the source of the virus. If one assumes that this virus was of human origin, it then follows that it must have come either from patients in the isolation hospital or from patients or carriers in adjacent areas of the city (fig. 4) or from both. One conclusion that can be drawn from the positive finding is that whether or not the virus came from the hospital it seems to have survived in an urban sewerage system long enough to be transported for a distance of at least an eighth of a mile.

Other tests of sewage from this site which gave negative results are described in another publication. We did not succeed in isolating the virus from the many specimens collected after the major part of any of the epidemics was over.^{13a}

COMMENT AND SUMMARY

From these laboratory experiences it appears that newer methods of testing human feces and sewage have been of assistance in detecting the existence of the virus of poliomyelitis throughout an infected community during epidemic times. An example of this type of assistance is illustrated by tests on some of the patients in an epidemic in rural Connecticut. At the onset of this epidemic, the cases were confined within a relatively small area, and stool specimens were obtained from persons who were thought to have been intimately exposed. Subsequently the epidemic became more scattered, and in its spread attention has been attracted to a fairly large polluted watercourse along which some of the patients seem to have been grouped.

During that summer, river and harbor water and large volumes of sewage were tested in three urban epidemics which occurred elsewhere in the country. From these samples, tested during epidemic times, the virus of poliomyelitis was detected in two sewers both of which were in the vicinity of hospitals, and from these tests we learned that not only can the virus content of sewage be large but the virus may be transported, for short distances at least, by flowing sewage.

13. Gard, Sven: A Method for Detecting Poliomyelitic Virus in Sewage and Stools, *J. Exper. Med.* 71: 779 (June) 1940.

13a. During an epidemic of about 70 cases of poliomyelitis which occurred in Stockholm, Sweden, in the fall of 1939, Kling also was successful in isolating poliomyelitis virus from the local sewage (Levaditi, C.: Sur la présence du virus poliomyélique dans les eaux d'égout, *Bull. Acad. de méd.*, Paris 123: 335 [April 23-30] 1940). In our second series of sewage tests, carried on during the summer of 1940, a single positive result was obtained from a large sewer in New York City, which was not in the vicinity of an isolation hospital, although cases of poliomyelitis were present within the area this sewer drained.

It would seem unwise at present to make general statements about this finding so far as the epidemiology of poliomyelitis is concerned. We believe, as do others, that poliomyelitis is probably transmitted from one person to another by a number of different channels. Among these is the direct or indirect factor of close and intimate contact between infected persons, illustrated by the type of interfamilial contact in which juvenile members of a family usually share. Many of these infected persons may be convalescent carriers in the first few weeks of their recovery from either a diagnosed or a missed case; some of the exposed persons may become transient "healthy" carriers. But theoretically there may also be a variety of other channels in which contaminated food, milk and water, or conceivably insects, mammals or birds, play a part. That watercourses, and particularly watercourses polluted with sewage, may be related to one of these channels is suspected. The virus of poliomyelitis has never been isolated from "running water," but the tests herein reported show that it has been repeatedly isolated from "running" sewage. It is not evident from this last finding whether its presence in sewage is a direct or even an indirect link in the chain which leads this potentially infectious agent from one patient to another in this disease. Our observations merely call attention to in fact that the virus is there during epidemics.

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ABSTRACT OF DISCUSSION

DR. JAMES P. LEAKE, Washington, D. C.: The technic of Drs. Paul and Trask is the most important tool which has been developed for the epidemiologic study of poliomyelitis in years. They claim no originality, but they do deserve the credit. The high quality of their work on poliomyelitis is almost unique. It is only on the interpretation that there can be valid difference of opinion. I was glad to hear Dr. Trask say that in their study of clinical epidemiology it has seemed that what we ordinarily mean as human contact is that it is a method of transmission, by and large. One would infer from their figures that it is in the relatively young, and in those who have not in previous years acquired immunity to poliomyelitis, that we are most likely to have dangerous persons, dangerous in spreading the disease, and that is exactly the conclusion drawn from a study of the broad behavior of the disease in the United States over many years. Though their figures are small, they also tend to point to the nonparalytic and usually unrecognized case as being a more potent spreader of the disease than the recognized paralytic case. The general study of the disease apart from the authors' more exact study makes this obvious also. It is not clear to me, however, that healthy carriers may not be even more important than the nonparalytic or abortive or unrecognized cases of the disease. According to Trask, Paul and Vignette's published figures, about 15 per cent of their early cases were positive. They got this from the stools. From the fact that no positives were found among eight healthy contacts examined, one could say only that the incidence among such healthy contacts was less than 6 per cent. If such contacts for sampling were chosen among those who might have brought poliomyelitis into the family, they may have ceased to become carriers before the sample was taken. How does the virus get into the stools? That is a far different question from how the virus gets from one human body into another one. It seems to me it might well be that the virus might have been swallowed from nasopharyngeal secretions and discharged into the feces.

DR. T. M. RIVERS, New York: In spite of the good work that has been done, many questions regarding poliomyelitis remain unanswered. Indeed, there is no accurate yardstick whereby one can say that an individual case of illness is surely poliomyelitis and that an individual strain of virus unquestionably belongs in the poliomyelitic group. In addition, the matter of the portal of entry of virus in man and how the virus spreads

from man to man in nature are not clear; furthermore, there is an amazing lack of knowledge regarding the pathology of human poliomyelitis in relation to the idea of axonal transmission of the virus. All these questions are being vigorously attacked at the present time by a number of investigators. I should like to ask Drs. Paul and Trask two questions: Why is it that specimens of stools injected into the peritoneal cavity of monkeys bring them down with poliomyelitis in such a high percentage of cases, when fresh brain material full of active virus does not bring them down? How many instances of virus in the stool are they missing? We know that they have found it in a certain percentage of the cases and, if I am not mistaken, the percentage must be considerably higher than they have found.

DR. HAROLD L. AMOS, Greenwich, Conn.: The investigation of poliomyelitis may be divided into three periods: 1. The clinical and field studies of the previrus era, represented by the studies of Caverly and Wickman, pointed to the concept of dissemination of the virus through direct contact but more largely through persons with mild, abortive or subclinical forms of the disease. 2. The second period, initiated by the transmission of the disease to monkeys by Landsteiner and Popper, and the work of Flexner and Lewis, began a period of investigation which centered on the virus itself and the behavior of the experimental disease. The results of these studies were corroboration of the essential concept arrived at by the earlier studies, and then the implication of the nasal mucosa, or other barriers to the central nervous system, as determinants of clinical or subclinical infection on exposure to the virus. Later the application of the neutralization test for serologic immunity in epidemiologic studies revealed a process of immunization in the general population taking place to the same extent and with the same rapidity as with the more common widespread infectious agents, such as measles and diphtheria. Thus the concept of widespread dissemination of the virus, with limited occurrence of the paralytic disease, has held through the whole period of investigation. It has received corroboration and gained in stature at each additional step; furthermore, it has withstood the challenge of innumerable opposing theories. But this trend in thought and investigation has at no time been seriously, or for long, set aside. Many theories, on the surface more plausible, have been eagerly grasped and have had their day, only to fail when put to test or when further investigation has forced us back to the concept which now stands highest because of the support of valid, consistent observations. 3. In the first two periods the emphasis was placed on the virus itself, or exposure to the virus as the major factor in the determination of disease distribution, and the mode of spread of the virus was the central idea in epidemiologic studies. A third period, marked by the acceptance of widespread dissemination of the virus and a shift of emphasis from the mode of spread of the virus itself to the epidemiologic studies of the paralytic disease among those exposed, is represented by the trend of researches of the present and has further developed the idea that the occurrence of the paralytic disease among those exposed to the virus not only is limited but exhibits certain selectivities. These selectivities point not so much to factors of exposure as to factors in the exposed as a major determinant of the paralytic disease. The implications are that a disturbance of the intact mucous membrane during harborage of the virus is an etiologic factor in the disease.

DR. JAMES D. TRASK, New Haven, Conn.: Dr. Rivers asked us two questions. The first one is How many times did we miss finding the virus in stools? I think that this may have happened frequently. In the spring of 1939 Dr. McClure, of Albany, detected virus in the stools of five children during a small outbreak in Syracuse. Two days after him we collected stools from the same children and our tests were negative with all five. The second question of Dr. Rivers is Why does intraperitoneal inoculation of stool succeed when passage of monkey cord generally must be done intracerebrally? We think that the reason is that the spinal cord of inoculated monkeys frequently contains antibodies for the virus together with the virus. Thus as in the case with mixtures of antibodies and virus in other diseases (vaccinia, for example) passage may succeed with the intracerebral route when the subcutaneous or intraperitoneal routes may fail.

Clinical Notes, Suggestions and
New Instruments

SIGNIFICANCE OF HEMORRHAGIC TAP
IN APOPLEXY

A. H. TERRY JR., M.D.; SIGMUND FALK, M.D., AND
L. H. BRONSTEIN, M.D., NEW YORK

At one of the clinical conferences at the Beekman Street Hospital an intern unwittingly provided the stimulus for this paper, stating that he had never seen a patient recover who had a cerebral hemorrhage associated with a hemorrhagic or bloody spinal fluid. This started the ball rolling. Every one had a foggy prognostic idea but no one was sufficiently wise to settle the question. A search of the literature for the last ten years, as well as a review of the standard textbooks of pathology and neurology, failed to provide the answer. If the subject was touched on at all, a single statement that this was a poor sign was the sole conclusion—how poor a sign was never stated. The original articles in the literature safely attacked the problem from hindsight, analyzing autopsy material. Such studies disclosed that in cases coming to autopsy cerebral hemorrhages had a shorter existence when there was rupture into the ventricles. This showed which way the wind blew after the ship was wrecked but provided no barograph to protect the medical mari-

Results in 173 Cases of Hemorrhage or Thrombosis
of the Brain

Type Fluid	Hours					Hospital Days					Weeks		Survived	Died	Total
	1-2	2-6	6-12	12-24	24-48	2	3	4	5	6	7	2d	3d		
Bloody.....	8	11	5	3	4	3	2	1	1	..	..	3	..	2	41
Slightly bloody ..	1	..	2	1	1	1	1	2	1	..	..	..	1	2	10
Xanthochromic ..	1	1	..	..	1	..	..	..	..	..	..	..	1	3	4
Clear tap.....	1	..	2	6	2	..	5	1	1	2	2	..	20	22	42
No tap.....	5	16	6	3	5	5	1	3	1	2	2	..	20	49	69
Total.....														47	126

ner against the force of the storm when it struck. Our desire was primarily to know what prognosis to give patients admitted to the hospital, after cerebral accidents, with sanguineous spinal fluid. We undertook to eliminate vascular damage occurring at the base of the brain and confine ourselves to cases due to hemorrhage or thrombosis in the brain, commonly referred to as "apoplexy," "stroke" or "shock." We reviewed 173 such cases, and the results are here tabulated. The spinal fluid is referred to as bloody, slightly bloody, xanthochromic or clear. Sometimes there was no tap because the patient was too sick or too well or because the procedure did not meet with the approval of the attending physician. The length of survival is given in hours, days and weeks.

SUMMARY

- 1. Of 173 patients with cerebral hemorrhage or thrombosis, 47 (27 per cent) survived.
- 2. If there was hemorrhagic spinal fluid, 2 (less than 5 per cent) survived.
- 3. If there was slightly hemorrhagic spinal fluid, 2 (16 per cent) survived.
- 4. If there was clear tap, 20 out of 42 (about 48 per cent) survived.
- 5. When no tap was done, 20 out of 49 (40 per cent) survived.

COMMENT

No attempt is made to evaluate these statistics beyond satisfying the original question. All were hospital cases, perhaps worse than the regular run of the mill but nevertheless more illuminating than none at all, and they provide some kind of an answer to an incredulous hospital intern, and so to him the conclusion is that cases of apoplexy presenting hemorrhagic spinal fluid are 95 per cent fatal.

From the Beekman Street Hospital.

SCLERODERMA WITH PULMONARY FIBROSIS

JOHN R. MURPHY, M.D.; PHILIP KRAININ, M.D., AND
MARTIN J. GERSON, M.D., NEW YORK

The pathologic changes in diffuse scleroderma are not confined to skin and subcutaneous tissue alone but involve the connective tissue system throughout the entire body. Muscle, fascia, tendon, bone and at times even the endocrine glands and the internal organs participate in the disease process. Everywhere the same changes occur, namely edema followed by sclerosis of the collagenous bundles. This may occur in the connective tissue between the alveoli of the lung, the acini of the liver, the glomeruli of the kidney and the muscle fibers of the heart and within the pulp of the spleen.¹ The smaller arteries within the regions involved show corresponding sclerotic degeneration and thickening of the intima which may proceed to obliteration of the lumen and subsequent focal necrosis.²

The case to be presented is of interest because it has been possible to demonstrate visceral pathologic changes, namely pulmonary fibrosis or sclerosis as a clinical manifestation. A search of the literature of scleroderma has brought to light no other case in which the pulmonary manifestations of the disease were visualized by roentgenographic study.

REPORT OF CASE

History.—D. M., a Southern Negress aged 30, a housewife, entered the Morrisania City Hospital May 4, 1939, complaining of gradual loss of weight and a feeling of discomfort in the chest. During the past six months her weight had dropped from 115 to 102 pounds (52 to 46 Kg.). Since February she had noticed stiffness of her fingers and aching pains in her shoulders and arms. There was occasional cough, with expectoration of



Fig. 1.—Appearance of patient, showing sclerodactyly and masklike facies.

a small quantity of thin mucoid sputum, never blood streaked. In March she noted a tightening of the skin of her face and a thickening of the skin over her hands, forearms and legs.

From the Medical Service of Dr. David Greenberg, Morrisania City Hospital.

1. Cassirer, Richard, and Hirschfeld, Robert: *Die Sklerodermie*, in Kraus, Friedrich, and Brugsch, Theodor: *Spezielle Pathologie und Therapie innerer Krankheiten*, Berlin, Urban & Schwarzenberg, 1924, vol. 10, pt. 3, p. 557.

2. Masugi, M., and Yä, S.: *Die diffuse Sklerodermie und ihre Gefässveränderung*, Virchows Arch. f. path. Anat. 302: 39, 1938.

Shortly before admission she began to complain of some difficulty in breathing because of a sensation of "tightness in the chest."

The past history revealed no illnesses; she had not had pneumonia, pleurisy or frequent colds. For at least five years there had been a painless deformity of the finger tips and nails. The menses were regular, with onset at 12 years, of three days' duration. The menstrual flow had been scanty during the six



Fig. 2.—Section of epidermis and corium of patient with scleroderma (low power magnification).

months prior to admission. Her two children, 7 and 12 years of age, were living and well; there had been one miscarriage at two months. Both her parents had died late in life of pneumonia.

Examination.—The patient was poorly nourished, tall and thin, and not dyspneic or orthopneic. The facies was masklike and devoid of wrinkles and furrows (fig. 1). The skin of the face, arms and forearms, legs and feet was thickened and shiny; it was difficult to raise a fold of skin from these sites. Areas of mottled depigmentation were present over the nose, about the mouth and chin and on the anterior aspect of both legs. The thickening of the skin over the chest and abdomen was less obvious. The hands and feet were cold to the touch. There was shortening of the fingers and a clubbing of the terminal phalanges. The nails presented longitudinal striae. There was no limitation of motion of the extremities.

The pupils were equal and regular and reacted to light and in accommodation. The media were clear and the fundi presented a normal appearance. There were no abnormalities in the mucous membranes of the nose, throat or mouth. The skin of the neck was minimally involved in the sclerodermatous process and was freely movable; no lymph nodes were palpable. The trachea was located in the midline and the thyroid was not enlarged. The anteroposterior diameter of the chest was not increased, but the excursion of the chest appeared to be limited on inspiration. Percussion resonance over the lungs was impaired with diminished breath sounds throughout. No rales could be heard. The heart was not enlarged. There was regular sinus rhythm and the sounds were of good quality. The second pulmonic sound was accentuated and there was a soft apical systolic murmur. Blood pressure was 100 mg. systolic and 65 mg. diastolic. The abdomen was moderately distended but soft. The tip of the spleen was palpable. No abnormalities

were found on rectal or vaginal examination. The reflexes were physiologic and no abnormal neurologic changes were elicited.

A piece of skin was removed from the anterior aspect of the left leg and examined microscopically. The epidermis was of normal thickness with dense pigmentation present in the malpighian layer. The dermal papillae were flattened and indistinguishable from the remainder of the corium, which consisted of thick coarse bundles of collagenous fibers intertwining

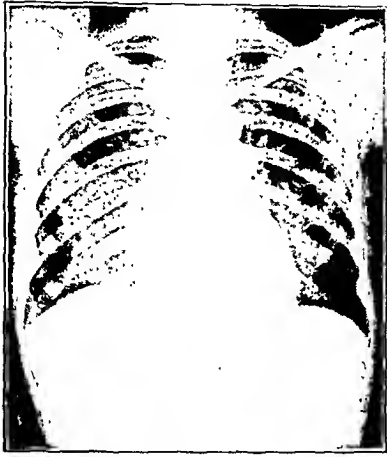


Fig. 3.—Appearance of chest, showing pulmonary fibrosis.

in all directions and containing few cellular elements. There was a marked increase in the thickness of the corium, the result of connective tissue sclerosis. Few small blood vessels were to be seen. There was a paucity of hair follicles and sweat glands. The subcutaneous fatty layer was much thinner than usual (fig. 2).

Röntgenographic examination of the chest showed no abnormality of the ribs or of the diaphragm, and the heart appeared within normal limits of size and shape. Within both pulmonary fields, exclusive of the apexes and the lateral aspect of the bases, there was a diffuse network-like shadow extending from the cardiac border to the periphery. This shadow was dense in the lower halves of the lung fields but thinned out and became strandlike in the subclavicular regions (fig. 3). Bronchography with iodized poppy-seed oil was performed, and this revealed a normal bronchial tree.

Except for small fragments of residual bone, the distal phalanges of the hands were absent and there was partial destruction of the distal half of the terminal phalanges of each fifth toe. The long bones were normal. There was a slight cloudiness of the left maxillary antrum.

An electrocardiogram revealed only left axis deviation.

Examination of the blood showed 11,000 leukocytes, of which 68 per cent were polymorphonuclears, 31 per cent lymphocytes and 1 per cent monocytes. There were 5.5 million erythrocytes with 78 per cent hemoglobin. The Kahn reaction of the blood was negative. Chemical examination revealed a serum calcium of 10 mg. per hundred cubic centimeters and again 10.1 mg., and a serum



Fig. 4.—Appearance of chest after right pneumothorax. Note absence of markings in the right side of the chest.

phosphorus of 4.5 mg. per hundred cubic centimeters. Serum phosphatase was 5.4 Bodansky units.

Serum cholesterol was 229 mg. per hundred cubic centimeters on one occasion and 200 mg. on another. Urea nitrogen was 7.2 mg. and dextrose 107 mg. per hundred cubic centimeters.

Venous pressure was equivalent to 7.5 cm. of water, and the circulation time was 7 seconds for ether and 15 seconds for saccharin.

The sputum was repeatedly negative for tubercle bacilli and a tuberculin test in the dilution of 1:10,000 gave negative results. The urine was normal and the basal metabolic rate was plus 11.

Course.—On the fifth day after admission the patient had a chill with a temperature of 105 F., together with swelling over the bridge of the nose. The lesion rapidly spread in butterfly fashion with a well defined border, so that within twenty-four hours the eyelids, forehead and cheeks were involved. The leukocyte count rose to 27,900 with 92 per cent polymorphonuclears. This was diagnosed as erysipelas. Sulfanilamide was administered and within forty-eight hours the temperature was normal and the facial swelling had almost completely disappeared.

During her stay in the hospital the patient gained weight, and the bone and joint pains disappeared. The sense of discomfort persisted but there was never any objective respiratory distress. She was discharged improved on August 2.

Because of the possibility that the pulmonary shadows viewed on the original roentgenograms might have been caused by sclerosis of the overlying skin and muscle, a diagnostic pneumothorax was performed on the right side and partial collapse was obtained. Check-up films revealed that the pathologic

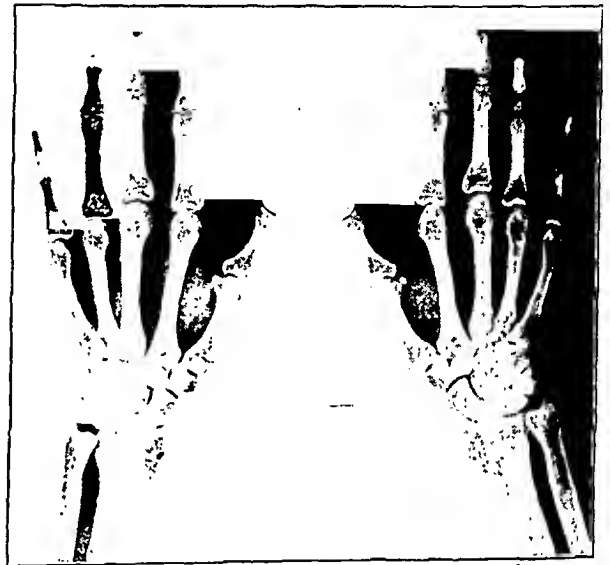


Fig. 5.—Appearance of hands, showing almost complete absence of distal phalanges.

changes previously observed were caused by a lesion within the lung and the appearance of fibrosis was not demonstrable in the soft tissues of the chest wall (fig. 4).

COMMENT

One may read many protocols of autopsies in which scleroderma was seen without finding reference to pathologic changes in the lungs other than incidental pneumonia, pleuritis, silicosis, tuberculosis and the like, all clearly unrelated to the disease process itself. Rarely, however, has a characteristic diffuse pulmonary fibrosis been described. The observers who have noted this are Notthafft,³ Matsui⁴ and Kraus,⁵ with a total of six cases. There was a varying amount of pulmonary emphysema in each case associated with hypertrophy and dilatation of the right ventricle of the heart. Histologically, the appearance was that of a "chronic interstitial pneumonia" with extensive connective tissue proliferation and thickening of the alveolar septums, together with changes in the associated blood vessels. The arteries showed marked proliferation of the intima,

3. von Notthafft, Albrecht: *Neuere Arbeiten über Sklerodermie*, Centralbl. f. allg. Path. u. path. Anat. 9: 870 (Nov. 15) 1898.

4. Matsui, S.: *Ueber die Pathologie und Pathogenese von Sklerodermia universalis*, Mitt. a. d. med. Fak. d. k. Univ. zu Kyoto 31: 55, 1924.

5. Kraus, E. J.: *Zur Pathogenese der diffusen Sklerodermie*, Virchow's Arch. f. path. Anat. 253: 710, 1924.

hypertrophy of the media and infiltration with round cells. Matsui called attention to the disturbance in the lesser circulation resulting from interference with the pulmonary vascular bed, producing right ventricular hypertrophy. Roentgenographic studies of the lungs were not made.

Our case showed no evidence of cor pulmonale. The cardiac shape, circulation time and venous pressure were normal and the electrocardiogram showed left axis deviation. We feel justified in attributing the pulmonary changes viewed on the x-ray films⁶ to the sclerodermatous process, since there was no history of respiratory infections or exposure to dusts and since both bronchiectasis and tuberculosis could be excluded. The roentgenographic appearance of pulmonary fibrosis occurring in generalized scleroderma has never before been reported. Puddu,⁷ however, described fine calcified areas scattered throughout both lungs, visualized on the x-ray films, in a case of Thibierge-Weissenbach syndrome (scleroderma with calcinosis).

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Special Article

GLANDULAR PHYSIOLOGY AND THERAPY

THE ESTROGENIC SUBSTANCES

EDWARD A. DOISY, PH.D., D.Sc.

ST. LOUIS

This special article is published under the auspices of the Council on Pharmacy and Chemistry. It is one of a series which will be published in book form as the second edition of "Glondulor Physiology and Therapy." The opinions expressed in these articles are those of the authors and not the official views of the Council.—Ed.

Although several investigators¹ contributed to the early development of research on estrogens, rapid progress did not begin until after the publication of the vaginal smear reaction² for the detection of these substances. The work was given additional impetus by the discovery of the high concentration of estrogens in the urine of pregnant women and in the urine of pregnant mares.³ These discoveries, which provided excellent sources of the estrogens and the means of quantitative determination, were of paramount importance to the isolation of the estrogens and the determination of their structure, as well as to the introduction of an ample supply of estrogenic substances for therapeutic use. The subsequent availability of pure estrogens has permitted an investigation of their role in sex physiology, particularly with respect to the estrous and the menstrual cycle, and of their interrelationships with other internal secretions.

6. Dr. Samuel Weitzner made the x-ray studies in this case.

7. Puddu, Vittorio: Un caso di scleroderma con calcificazioni, *Policlinico (sez. prat.)* 41:1801 (Nov. 19) 1934.
From the Department of Biochemistry, St. Louis University School of Medicine.

1. Adler, L.: Zur Physiologie und Pathologie der Ovarialfunktion, *Arch. f. Gynäk.* 95:349, 1912. Fellner, O. O.: Experimentell erzeugte Wachstumsveränderungen am weiblichen Genitale der Kaninchen. *Zentralbl. f. allg. u. path. Anat.* 23:673, 1912. Herrmann, E.: Ueber eine wirksame Substanz im Eierstocke und in der Placenta, *Monatsschr. f. Geburtsh. u. Gynäk.* 41:1, 1915. Frank, R. T., and Rosenbloom, J.: Physiologically Active Substances Contained in the Placenta and in the Corpus Luteum, *Surg., Gynec. & Obst.* 21:646, 1915.

2. Allen, Edgar, and Doisy, E. A.: An Ovarian Hormone: Preliminary Report on Its Localization, Extraction and Partial Purification and Action in Test Animals, *J. A. M. A.* 81:819 (Sept. 8) 1923.

3. Aschheim, Selmar, and Zondek, Bernhard: Hypophysenvorderlappen Hormon und Ovarialhormon im Harn von Schwangeren, *Klin. Wchnschr.* 6:1322 (July 9) 1927. Zondek, Bernhard: Mass Excretion of Oestrogenic Hormone in the Urine of the Stallion, *Nature, London* 133:209 (Feb. 10) 1934.

CHEMISTRY OF ESTROGENIC SUBSTANCES

At this point a brief review of the chemistry of both the natural and the synthetic estrogens may prove valuable to the reader. According to a system of nomenclature proposed by a group of British investigators,⁴ the parent saturated hydrocarbon is named estrane, and the unsaturated hydrocarbon from which the natural estrogens are derived, $\Delta^{1,3,5}$ -estratriene. The first natural estrogen isolated in a crystalline form was named theelin by Doisy;⁵ according to its relationship to estrane, it is 3-hydroxy-17-keto- $\Delta^{1,3,5}$ -estratriene. For convenience this name has been abbreviated to estrone. The Council on Pharmacy and Chemistry of the American Medical Association recognizes as nonproprietary names both estrone and theelin.⁶

Natural and Synthetic Estrogens.—Estrone, or theelin, $C_{18}H_{26}O_2$, the first pure estrogen to be isolated, was obtained in 1929 from human pregnancy urine.⁷ Later it was obtained in crystalline condition from the urines of pregnant mares, stallions and men, from human placenta, from adrenal glands (probably beef) and from palm kernels. Its presence in sow ovaries was clearly indicated by physical, chemical and physiologic reactions. A conjugated form, estrone sulfate, has been isolated from mare's urine.

Estriol, or theelol, $C_{18}H_{26}O_3$, is obtained from human pregnancy urine,⁸ human placenta and pussy willows (?). A conjugated form, estriol glucuronide, has been isolated from human pregnancy urine. The relationship of estriol to estrone was established on conversion of the former to the latter by dehydration.

Estradiol, or dihydrotheelin, $C_{18}H_{26}O_2$, can be obtained by reduction of estrone in two isomeric forms, due to the new asymmetric carbon atom 17. The alpha compound has been isolated from sow ovaries,⁹ the urine of pregnant mares, human pregnancy urine and human placenta. The beta form has also been obtained from mare's urine.

4. Adam, N. K.; Danielli, J. F.; Dodds, E. C.; King, H.; Marrian, G. F.; Parkes, A. S., and Rosenheim, O.: Nomenclature of the Oestriol Group, *Nature, London* 132:205 (Aug. 5) 1933.

5. Veler, C. D.; Thayer, S. A., and Doisy, E. A.: The Preparation of the Crystalline Follicular Ovarian Hormone: Theelin, *J. Biol. Chem.* 87:357 (June) 1930.

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Several other natural estrogens have been isolated. In 1932 three additional compounds, equilin, hippulin and equilenin,¹⁰ were obtained from the urine of pregnant mares. Subsequently, Wintersteiner and his collaborators isolated α -estradiol, β -estradiol and α -dihydroequilenin from the same source.

Owing to the minute concentration of estrogen and the large quantity of lipid contaminants, the isolation of estrogens from solid tissues did not proceed so rapidly. In 1930 Browne obtained estriol from human placenta, but it was not until 1938 that theelin and not until 1940 that α -dihydrotheelin were obtained from that tissue. α -Dihydrothecelin was isolated from sow ovaries in 1935, and the existence of approximately an equal concentration (about 6 mg. per ton) of theelin in sow ovaries was demonstrated in 1938.

Owing to the effect of certain types of adrenal tumors on sexual development, the isolation of estrone from adrenal extracts is interesting. Is estrone formed normally in the adrenal? If so, is this purposeful production, or is the substance merely a by-product of the steroid syntheses which seem to occur so profusely in the adrenal?

The synthesis of equilenin from simple starting materials by Bachmann¹¹ is one of the great accomplishments of the chemist in the sex hormone field. Although partial syntheses have given progesterone and several androgens, the production of equilenin is the first total synthesis of a sex hormone.

In addition to the synthesis of the natural estrogen, equilenin, several compounds having estrogenic properties have been synthesized. The first compound which was prepared, 1-keto-1,2,3,4-tetrahydrophenanthrene,¹² had relatively feeble activity, but finally compounds of exceptional potency were obtained. 9,10-Dihydroxy-9,10-di-n-propyl-9,10-dihydro-1,2,5,6-dibenzanthracene and triphenylethylene have a fair degree of activity, but stilbestrol and hexestrol have potencies of the same magnitude as estrone. Similar to the natural estrogens, stilbestrol and hexestrol have phenolic properties.

Chemical and Physical Properties of the Natural Estrogens.—Since all of the natural estrogens are phenolic and all other known sex hormones are not phenolic, a separation can readily be effected through the solubility of the former in aqueous alkali. The relative insolubility of the estrogens in purified petroleum benzine U. S. P. (petroleum ether) has been important in their separation from other lipids.

In all of the estrogens ring A is aromatic and, consequently, the hydroxyl on carbon atom 3 is phenolic. The only other point of substitution in the hydrocarbon structure is at carbon atom 17, at which either a carbonyl or a secondary alcohol is present. If the latter is present, two stereoisomers are possible, depending on the relative position of the hydroxyl.

Two reagents have been used successfully to separate the ketonic from the nonketonic estrogens. Trimethylaminoacetylhydrazide chloride (Girard and Sandulesco^{13a}) and carboxymethoxylamine (Wintersteiner^{13b}) react with ketonic estrogens

to form water-soluble derivatives. In addition to the reactions with these reagents, the ketonic compounds react with hydroxylamine, semicarbazide, acetylene and the Grignard reagents.

The phenolic hydroxyl reacts with a variety of compounds to produce esters; perhaps the acetate and benzoate are the best known. The 3,17 dihydroxy estrogens can be converted into 3,17 diesters, the 3-monocester or the 17-monoester. Esters of these types with several different acids have been synthesized by Miescher and Scholz.¹⁴ The 3 benzoate and 3,17 dipropionate of α -estradiol are used therapeutically.

Like simple phenols, the estrogens give color reactions with Millon's reagent, diazotized aromatic amines and Folin's phenol reagent. In addition, Kober^{15a} has shown that under certain conditions estrogens react with a mixture of phenol and sulfuric acid to give a red color, the intensity of which could be used for quantitative determinations. Cohen and Marrian^{15b} proposed a method for the separation of estrone and estriol and determined the estrogen of each fraction by a modification of the Kober reaction. Additional modifications of the Kober reaction have been proposed by Bachman.^{15c} Owing to the rapidity of execution and the accuracy of the results, it seems likely that in many instances these colorimetric analyses may displace determinations by bioassay.

The structure of the estrogens has been established through the contributions of several investigators. Butenandt, Weidlich and Thompson^{16a} showed that rings A, B and C are fused together as in phenanthrene; Haworth and Sheldrick,^{16b} that the hydroxyl in ring A is in the three position, and Cohen, Cook and Hewett,^{16c} that the estrogens are perhydro derivatives of 1,2-cyclopentenophenanthrene having the angle methyl group on carbon atom 13 and the oxygen atom on carbon atom 17. Confirmation of the accepted views of structure has been effected by the splendid synthetic work of Bachmann and co-workers,^{11a} in which a simple compound, 1-naphthylamine-6-sulfonic acid, has been converted by a series of reactions into equilenin. Since the conversion of equilenin into estrone had already been described by Marker, the structures of both estrone and equilenin are fully established.

BIOLOGIC REACTIONS OF THE ESTROGENS

As Edgar Allen¹⁷ pointed out in the first edition of "Glandular Physiology and Therapy," the estrogens are primarily growth-promoting agents. Certain of the more important reactions will be considered in some detail. Similar to the natural estrogens, the synthetic estrogen, stilbestrol, produces almost all, if not all, of the effects of the natural estrogens.

The Vaginal Reaction.—Early work on the ovariectomized rat and mouse showed that injections of estrogen were followed by growth of the vaginal epithelium, the thickness increasing from two or three to about fifteen cells.¹⁸ The sloughing of squamous

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cells gave large cells with small nuclei or cornified cells typical of a response to estrogenic stimulation. This reaction has been used since 1923 in many assays of the estrogens. Without doubt the present advanced knowledge of the distribution and chemistry of the estrogens is due in large part to Edgar Allen's recognition of this reaction.

The work on vaginal smears has been extended to other species, but perhaps the most interesting development is the correlation by Papanicolaou^{19a} of the change in the vaginal smear with other phenomena of the sex cycle of women. Subsequently, Papanicolaou and others^{19b, c} have used the change in the smear as a guide to estrogenic therapy.

Estrogenic therapy for gonorrheal vaginitis²⁰ of prepuberal girls is based on the growth and thickening of the vaginal epithelium. Accompanying this growth, there is deposition of glycogen, with formation of a more acidic secretion. Biopsy specimens have shown the enormous growth that can be produced by proper medication with estrogens.

In the study of vaginal growth in animals the effects of colchicine²¹ have yielded interesting results. Although this drug does not stimulate mitosis, it arrests dividing cells in the metaphase, thereby causing accumulation of many mitotic figures. This has permitted observation of the marked increase of mitosis due to the injection of estrogens.

Uterine and Tubal Reactions.—The injection of estrogens produces cell division in both the epithelium and the muscular layers of the uterus. With the use of colchicine it has been possible to demonstrate clearly the increased cell division occurring in both the tubes and the uterus after injection of estrogens. In addition to the growth there is definite development of the uterine glands, with an increase in the amount of secretion in the lumens of the uterus and tubes. Markee's²² experiments in which a piece of endometrium was transplanted to the anterior chamber of the eye furnished an opportunity to observe in the living animal the effects of injections of estrogens, ovariectomy and related procedures.

Early work indicated that the administration of liquor folliculi to ovariectomized rats produced changes in the uteri indistinguishable from those in the uteri of rats in normal estrus.²³ Since this has been confirmed, using pure crystalline estrogens, there can be no doubt that estrogens are responsible for the growth and hyperplasia observed during the estrous cycle of the rat and

mouse. Moreover, Allen and others have shown that estrogens produce growth and hyperplasia in ovariectomized monkeys and that after cessation of injections bleeding occurs. This seems to be identical with the anovulatory menstruation of the monkey (Corner).

The increase in weight of the uterus following administration of estrogen was used for assay prior to the introduction of the vaginal smear. Recently, several investigators²⁴ have returned to the stimulation of uterine growth as a method of assay. However, it should be emphasized that with this procedure the animal can be used for only one assay.

Astwood and collaborators²⁵ have contributed an interesting analysis of the changes that occur in the uterus in response to the injection of estrogen. Six hours after the injection the uterine weight has increased appreciably, but the addition is due to water. Twenty-four hours later the composition of the uterus has been restored to normal, although the weight is greater than at the six hour interval.

In addition to the effects on the circulatory system and on uterine and tubal growth, estrogens have a pronounced effect in increasing uterine motility.²⁶

The discrepancy between the observations of different investigators as to the effect of estrogens on pregnancy seems to have been satisfactorily explained by the experiments which showed that administration of estrogen shortly after coitus causes locking of the tubes, in rabbits and mice.²⁷ The fertilized ova remain in the tubes and do not continue their development.

Mammary Reaction.—Growth of both the nipple and the mammary gland is stimulated by estrogens.²⁸ Sand has used the development of the nipples of males as an indication of the survival of transplanted ovaries.

In several species the injection of estrogen stimulates growth of the ducts, but in the guinea pig both ducts and alveoli respond with increased development. In strains of female mice which usually acquire mammary cancer the malignant growth is prevented by early ovariectomy. Moreover, Lacassagne has shown that the males of strains in which the females are susceptible to mammary cancer also show cancer in that gland if subjected to a course of estrogen injections.²⁹

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Reactions of the Anterior Lobe of the Pituitary.—Castration is followed by cytologic changes in the anterior lobe of the pituitary, and the cytologic changes can be reversed by administration of estrogens. In addition to the cytologic change following castration, the anterior lobe contains an increased quantity of gonadotropin.³⁰

In young rats the administration of a large quantity of estrogen is followed by luteinization of the ovaries. According to one view, this is due to release of a luteinizing product of the anterior lobe of the pituitary. If the injection is continued over a longer period, the ovaries diminish in size, although the uterus and vagina show the effect of estrogenic stimulation. However, experiments have shown that the ovaries have suffered no permanent damage, since female rats which had been given daily injections for a month produced normal litters. Since this point has considerable importance in the treatment of gonorrheal vaginitis in girls, Allen and Diddle have studied the effect of prolonged treatment in monkeys. No permanent damage could be detected.³¹

In addition to their effect in altering the gonadotropic output of the anterior lobe, injection of estrogen exerts a suppressing effect on the output of the lactogenic factor and indirectly on the secretion of milk.³²

Effect on Calcium.—Although the effect on the serum calcium of birds has been a controversial point, it seems that massive quantities of estrogens do produce a striking increase. In the mouse, Gardner and Pfeiffer³³ have shown marked disturbances in calcium metabolism, in which the pelvis show resorption and the long bones show an increase in density due to the replacement of marrow by bone spicules.

Effect on Fowls.—In some varieties of birds feathering is influenced by the sex hormones. In addition to the production of female feathering estrogens produce hypercalcification of bones and an increase in serum calcium and blood lipids. Although the increase in lipids due to the injection of estrogens is very marked, the values are not so high as those observed during the laying season.³⁴

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BIODASSAY OF ESTROGENS

Although an additional standard for the estrogen benzoates was provided by the Permanent Commission on Biological Standardization at the last meeting of the League of Nations (1935), it was the opinion of the participants that "as rapidly and as far as possible, the production of preparations of the oestrus-producing hormones should be limited to pure preparations of the different forms of the hormone and its chemically defined derivatives or of mixtures thereof, so that the activity may be indicated in exact weights, and indications in biological units may be abandoned."³⁵

In my opinion it is not feasible to assay against a standard any estrogen other than the estrogen of which the standard is composed. Only two standards have been furnished: estrone and α -estradiol monobenzoate. The members of the Commission realized that only preparations of estrone could be assayed satisfactorily against the estrone standard and only esters against the α -estradiol monobenzoate. To illustrate the discrepancies of assay when another estrogen is assayed against the estrone standard, estriol has been compared with estrone, mice being used for the assay. If each substance is given in a single injection of oil, the estrone is two hundred and sixty-six times as potent as estriol. If each is given in aqueous solution in four equal portions at intervals of twelve hours, the estrone is four times as potent as estriol. Depending on the solvent and on the division of the dose, estrone may be four or two hundred and sixty-six times as potent as estriol.

A similar situation exists with respect to the relation existing between estrone and α -estradiol. When each is given in aqueous solution in three portions during a nine hour period, the α -estradiol is ten times as active as estrone if rats are used for the assay but only twice as potent if mice are used.

In view of the past experience that each investigator has seemed unwilling to follow the assay procedure that a previous investigator has used, it appears that it would be wise to agree that since bioassay has served its purpose in guiding chemists to the preparation of pure estrogens, it should now be discarded, the products for therapeutic use labeled in metric units and their evaluation effected by the response of patients.

Metabolism of Estrogens.—A number of investigations have shown that the natural estrogens on administration to rats and mice are much less active when given orally than when given parenterally. It seems likely that the low potency following oral administration is not due to failure of absorption but rather to the fact that through the portal circulation the absorbed substance is offered first to the liver. Estrogens are rapidly destroyed by liver brei. Moreover, it has been shown that the heart-lung-liver preparation rapidly destroys estrogen, whereas the same system without the liver has little or no destructive action. A recent report gives interesting data on the effects of various tissue slices and of brei on estradiol, estrone and estriol.³⁶

After parenteral administration, only a small proportion of estrogen can be recovered from tissues or excreta.³⁷ Even measures to hydrolyze possible conjugated and less active forms did not appreciably increase the recovery. Two reactions which might explain the loss merit consideration: (1) oxidation and (2) reduction. The phenolic portion of the molecule (ring A) is a point of weakness at which oxidation can take place. In the urine of nonpregnant women Marker found two inactive reduced forms, estranediol A and estranediol B. Since these compounds have not been found in pregnancy urine, Marker believes that the metabolism of estrogens in the pregnant and the nonpregnant woman follows different pathways.

35. Report of the Second Conference on the Standardization of Sex Hormones. League of Nations Quart. Bull. Health Organ. **4**: 618, 1935.

36. (a) Zondek, Bernhard: Ueber das Schicksal des Follikelhormons (Follikulin) im Organismus, *Skandinav. Arch. f. Physiol.* **70**: 133, 1934. (b) Israel, S. L.; Meranze, D. R., and Johnston, C. G.: The Inactivation of Estrogen by the Liver. Observations on the Fate of Estrogen in Heart-Lung and Heart-Lung-Liver Perfusion Systems, *Am. J. M. Sc.* **194**: 835 (Dec.) 1937. (c) Heller, C. G.: Metabolism of the Estrogens, *Endocrinology* **26**: 619 (April) 1940.

37. Zondek^{38a} Westerfeld, W. W.: The Inactivation of Oestrone, *Biochem. J.* **34**: 51 (Jan.) 1940. Marker, R. E.; Rohmann, Ewald; Lawson, E. J., and Wittle, E. L.: The Isolation of Oestraneols from Human Non-Pregnancy Urine, *J. Am. Chem. Soc.* **60**: 1901 (Aug.) 1938.

Several reports indicate that progesterone influences the metabolism of estrogen. A larger proportion of the injected estrogen is recovered when the organism has been treated with progesterone. Under these conditions a larger proportion of estrone or estradiol is converted to estriol. In the hysterectomized rabbit this change does not occur, thereby indicating that the uterus plays a part in the metabolism.³⁸

ESTROGENIC THERAPY

The earlier attempts at estrogenic therapy with aqueous solutions did not yield results that were entirely satisfactory. This was due in part to the limitation of the solubility of estrogens in aqueous solution and to rapid absorption and excretion. This situation was met by using neutral triglycerides, in which the estrogens are much more soluble and from which absorption occurs more slowly. At the present time some physicians are experimenting with pellet therapy, in which a compressed tablet of estrogen is introduced directly under the skin. In spite of certain obvious objections, this form of administration does insure slow continuous absorption of the estrogen over a long period.³⁹

From experiments on animals it seems that vaginal suppositories should be more effective than any other form of administration if it is desired merely to produce growth of the vaginal epithelium. Possibly this form of therapy is ideal for gonorrheal vaginitis in that responses other than vaginal may be restricted.⁴⁰

Although oral therapy may be more popular with patients, it seems that physicians have generally used preparations for parenteral use. No doubt, this was due in part to the prevailing evidence that in animals the natural estrogens were twenty or more times as active parenterally as enterally and in part to the desire on the part of the physician to secure more satisfactory control of therapy. Perhaps the recent experimentation with synthetic estrogens, ethinyl estradiol and stilbestrol, which are more active orally in animals will lead to an increased use of oral preparations when it has been satisfactorily established that such therapy is without danger.

With every woman of 40 years a prospective patient and actually a high percentage sooner or later being treated with estrogens, an experiment of tremendous magnitude is in progress. The acute undesirable reactions from ethinyl estradiol and stilbestrol which have been reported by some physicians have served as a definite warning that caution should be exercised.⁴¹ Furthermore, there seems during the last five years to be a definite trend toward massive dosage with both natural and synthetic estrogens. Perhaps this will

eventually prove to be satisfactory, but in the meantime it does not seem wise to be too incautious. Within another five or ten years any subacute damage which may have occurred will begin to make its appearance.

The increased incidence of malignant change following administration of estrogens to cancer-susceptible strains of animals serves as a definite warning. While it is true that the dose per kilogram of body weight is much higher than the amounts commonly used therapeutically in the human patient and that the most pronounced carcinogenic reactions are obtained in susceptible animals, still it seems unwise to ignore the possibility of accelerating or starting the growth of cancer in susceptible persons. Certainly, the treatment of patients having cancer or of patients from families with a history of cancer should be undertaken with a full recognition of the possibility of untoward results.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING STATEMENT.

THE COUNCIL ACCEPTS FOR INCLUSION IN N. N. R. SOME PRODUCTS OF ENDO PRODUCTS, INC.

Until recently no product of Endo Products, Inc., has been accepted by the Council on Pharmacy and Chemistry because of conflicts with the rules of the Council. On Jan. 12, 1938, the firm stated that it wished to cooperate with the Council. The firm has demonstrated its willingness to remove certain causes of conflict and has sent the Council a number of revisions of its catalogues. After considerable correspondence and negotiations, the Council voted to remove application of rule 11 from Endo Products, Inc. This action became effective June 5, 1940.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

OFFICE OF THE SECRETARY.

POLLEN ALLERGEN SOLUTIONS-SQUIBB (See New and Nonofficial Remedies, 1940, p. 37).

The following additional product, marketed in 5 cc. vials and having a potency of 10,000 protein nitrogen units per cubic centimeter, has been accepted:

Ragweed and Cocklebur Combined Pollen Extract-Squibb: (giant ragweed, dwarf ragweed, and cocklebur pollen extracts in equal proportions).

RACÉPHEDRINE (See New and Nonofficial Remedies, 1940, p. 242).

The following product has been accepted:

Racephedrine Hydrochloride-Upjohn.—A brand of racephedrine hydrochloride-N. N. R.

Manufactured by The Upjohn Company, Kalamazoo, Michigan. No U. S. patent or trademark.

Racephedrine Hydrochloride 1% in Modified Ringer's Solution: Contains in each 100 cc. racephedrine hydrochloride-N. N. R., 1 Gm., chlorbutanol, 0.5 Gm., sodium chloride, 0.85 Gm., potassium chloride, 0.03 Gm., calcium chloride, 0.025 Gm. and magnesium chloride, 0.01 Gm. dissolved in distilled water.

Capsules Racephedrine Hydrochloride 3½ Grain.

SULFANILAMIDE (See New and Nonofficial Remedies, 1940, p. 489).

The following dosage form has been accepted:

Tablets Sulfanilamide, 1 grain—The Upjohn Company. Prepared by The Upjohn Company, Kalamazoo, Mich. No U. S. patent or trademark.

38. Pincus, Gregory, and Zahl, P. A.: The Biogenesis of Primary Sex Hormones: The Fate of Estrins Injected into the Rabbit, *J. Gen. Physiol.* **20**: 879 (July) 1937. Smith, G. V., and Smith, O. W.: Observations Concerning the Metabolism of Estrogens in Women, *Am. J. Obst. & Gynec.* **36**: 769 (Nov.) 1938. Smith, G. V.; Smith, O. W., and Pincus, Gregory: Total Urinary Estrogen, Estrone and Estradiol During a Menstrual Cycle and a Pregnancy, *Am. J. Physiol.* **121**: 98 (Jan.) 1938. Pincus, Gregory, and Graubard, Mark: Estrogen Metabolism in Cancerous and Non-Cancerous Women, *Endocrinology* **26**: 427 (March) 1940.

39. Deansley, R., and Parkes, A. S.: Factors Influencing the Effectiveness of Administered Hormones, *Proc. Roy. Soc., London*, s. B. **124**: 279 (Dec. 7) 1937. Salmon, U. J.; Geist, S. H., and Walter, R. I.: Inhibitory Effect of Implanted Estrogenic Hormone Crystals upon Post-Menopausal and Castration Hypophysis of Women, *Proc. Soc. Exper. Biol. & Med.* **43**: 424 (Feb.) 1940. Bennett, H. G.; Biskind, Gerson, and Mark, Jerome: Subcutaneous Implantation of Compressed Crystalline Theelin Pellets in the Treatment of Menopausal Cases, *Am. J. Obst. & Gynec.* **39**: 504 (March) 1940.

40. Lyons, W. R., and Templeton, H. J.: Intravaginal Assay of Urinary Estrin, *Proc. Soc. Exper. Biol. & Med.* **33**: 587 (Jan.) 1936.

41. Selye, Hans: On the Toxicity of Oestrogens with Special Reference to Stilbestrol, *Canad. M. A. J.* **41**: 48 (July) 1939. Shorr, Ephraim; Robinson, F. H., and Papanicolaou, G. N.: A Clinical Study of the Synthetic Estrogen Stilbestrol, *J. A. M. A.* **113**: 2312 (Dec. 23) 1939. Risks of Estrogens, editorial *Lancet* **1**: 461 (March 9) 1940. Kurzrok, Raphael; Wilson, Leo, and Perloff, W. H.: The Action of Diethylstilbestrol in Gynecological Dysfunctions, *Endocrinology* **26**: 581 (April) 1940.

Council on Foods and Nutrition

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

FRANKLIN C. BING, Secretary.

DESSERTS IN THE DIETS OF ADULTS AND YOUNG CHILDREN

It is the custom to conclude most meals, except breakfast, with some sweet, appetizing food which is more than ordinarily attractive in appearance as well as flavor. Such foods are known in the United States as desserts. Although some products in this class are of comparatively recent origin, the practice of ending a meal with a small portion of a sweet, attractive food appears to be as old as recorded history.

PHYSIOLOGIC SIGNIFICANCE

From the physiologic point of view the custom of ending the meal with a dessert probably serves two purposes, that of completely satisfying the appetite and that of providing a final psychic stimulus to the secretion of gastric juice. Those desserts with a high content of sugar or fat or both have a high satiety value. The presence of the sensation of appetite (and of the appetite secretion) is evidence of the physiologic fitness of the

baked custard or baked apple alone. Thus the pastry may be said to "dilute" the essential dietary value of the fruit or custard. If a method adopted by the Council for the rating of foods as sources of the various dietary essentials is applied¹ it is found that only the fresh fruits or those desserts in which milk or dairy products are the predominating ingredients can be rated as nutritionally significant sources of any of the dietary essentials other than calories. This method takes into account the caloric value of the food as well as the total daily requirement and the quantity of any given dietary essential which is supplied by a portion which can be conveniently eaten in one day.

The adult whose regular occupation demands a large expenditure of physical energy, or the physically active adolescent, usually may indulge moderately in cakes, other forms of pastry or other desserts which are rich in calories. Indeed, these desserts are sometimes a convenient and palatable source of the relatively large amounts of food energy the active person requires. It is essential, however, that the amount of caloric-rich dessert which is eaten does not reduce the intake of other essential food substances. Also desserts containing large proportions of sugar probably should be avoided even by physically active persons if they appear to be unusually susceptible to dental caries.

Persons who lead less active lives, particularly sedentary persons of small stature, require fewer calories, and the amount of

TABLE 1.—Approximate Composition of Some Representative Desserts

Name of Product	Weight, Gm.	Approximate Measure	Calories	Protein, Gm.	Calcium, Gm.	Phosphorus, Gm.	Iron, Mg.	Vitamins (I. U.)		
								A	B ₁	C
Cake, plain, 2-layer, vanilla icing.....	100	1 pc. (1/12 cake).....	362	3.9	0.020	0.048	0.46	83	8	
Cake, chocolate, 2-layer, vanilla icing	100	1 pc. (1/12 cake).....	388	4.3	0.049	0.083	0.62	248	11	
Ice cream, vanilla.....	...	3/4 qt.....	245	3.7	0.124	0.103	0.23	426	9	
Ice cream, chocolate.....	...	3/4 qt.....	285	4.1	0.139	0.142	0.40	426	9	
Tapoca pudding.....	...	3/4 cup.....	148	4.9	0.105	0.112	0.72	261	10	
Custard, baked.....	...	3/4 cup.....	202	8.9	0.165	0.105	1.33	492	33	
Pie, custard.....	...	1/2 medium pie.....	263	6.3	0.107	0.129	0.81	261	19	
Cream puff (châtaign) custard filling....	80	1 average.....	104	4.0	0.059	0.080	0.62	195	13	
Gelatin, lemon.....	...	3/4 cup.....	82	1.2	0.001	0.001	0.04	...	+	
Apple, baked.....	115	1 large, 2 1/2 brown sugar.....	181	0.5	0.032	0.020	1.32	100	12	12-32
Pie, apple.....	...	1/2 medium pie.....	406	2.6	0.011	0.038	0.58	108	<11	?
Banana, fresh.....	100	1 small.....	99	1.2	0.068	0.028	0.65	400	18	20-300
Grapes, American.....	100	1 bunch, 22-24 average	78	1.4	0.019	0.035	0.73	15-90	10	20-144
Strawberries, fresh.....	100	10 large.....	41	0.8	0.034	0.028	0.65	100	<8	1,000
Watermelon.....	100	3/4 cup cubes or balls..	31	0.5	0.007	0.013	0.23	125	18	300

Values for all products derived from Anna de Planter Bowes and C. F. Church; Food Values of Portions Commonly Used, third edition, available from Anna de Planter Bowes, Philadelphia Child Health Society, Philadelphia, 1940.

gastrointestinal tract to handle the food eaten, although normal digestion will proceed in the complete absence of appetite juice, which is secreted as a result of the sight, smell or taste of appetizing foods. Thus the serving of an attractive, palatable dessert may be considered a useful, though not indispensable, factor in the proper conditioning of the digestive tract for the performance of its normal function.

THE NUTRITIONAL SIGNIFICANCE OF DESSERTS IN THE DIET OF THE ADULT

Desserts vary widely in nutritional value, according to the ingredients of which they are composed. A dessert should be selected not alone for its appetite appeal but for its food value as well. Due consideration should be given to the contribution of the dessert to the composition of the diet as a whole.

Those foods now commonly used as desserts include fruit, pastry of all kinds, such as pies, cakes and other baked goods, pudding of all types, and the universally popular ice creams and other frozen desserts. The differences which may be found in the composition of average portions of representative desserts selected from each of the foregoing categories are illustrated in table 1. In general the table shows that those desserts which are richest in calories are proportionally poorest in other dietary essentials. This is explained by the fact that the higher caloric desserts such as cake and various other types of pastry are composed largely of refined sugar, fat (butter or, perhaps more often, some other suitably prepared animal or vegetable fat) and highly milled wheat flour. These ingredients, except butter, are notably deficient in dietary essentials other than calories. The table also shows that the nutritional values, other than calories, of desserts such as custard or apple pie are less than those of

high caloric dessert eaten must be carefully restricted if the diet is to be adequate in proteins, minerals and vitamins and at the same time is to remain within the limits of the caloric requirement. When planning adequate diets for the sedentary

TABLE 2.—Proportions of Ingredients of Some Simple Home-Prepared or Institution-Prepared Desserts

	Milk, %	Fruit or Fruit Juice, %	Milk and Fruit, %	Eggs, %	Added Carbohydrates, %
Cornstarch pudding (blanc mange)	91.2	...	...	...	8.7
Baked custard.....	79.1	...	...	15.3	5.6
Rice pudding.....	81.8	8.1	89.9	...	10.1
Cream tapioca pudding.....	74.1	...	...	14.3	11.6
Prune tapioca pudding.....	52.9	27.7	80.6	10.2	8.9
Orange tapioca.....	25.2	27.8	53.0	...	20.0
Fruit gelatin dessert.....	...	77.2	...	...	...

Data for all products except fruit gelatin dessert are derived from recipes given by Mary E. Sweeney and Dorothy C. Buck: How to Feed Young Children in the Home, Merrill Palmer School, Detroit. Data for fruit gelatin dessert are derived from the recipes given by Mary E. Sweeney and Dorothy C. Buck: How to Feed Children in Nursery Schools, Merrill Palmer School, Detroit.

adult and the young child it is usually much simpler to attain success if high caloric desserts are completely eliminated from the menu. When included, even in modest quantities, it is difficult to plan a diet that is adequate in dietary essentials other than calories except for persons who require more than 2,500 calories daily.

1. Accepted Foods and Their Nutritional Significance, American Medical Association, Chicago, 1939.

Reducing or other calory-restricted diets frequently are limited to 1,500 calories or less. The milk, vegetables and other so-called protective foods which are the chief source of essential vitamins and minerals in the customary American diet themselves provide in the neighborhood of 1,000 to 1,500 calories when used in the amounts recommended by most experts in nutrition. Thus, in reducing diets the use of high calory desserts must be avoided. If used, these products inevitably will crowd out other and more essential foods or will result in a calory intake in excess of the requirement. Thus there results either more or less serious malnutrition, or the diet fails to accomplish its purpose of weight reduction. Desserts suitable for use in reducing or other calory-restricted diets are those which are themselves comparatively low in calories and which in addition provide nutritionally significant amounts of one or more dietary essentials other than calories. The data provided in table 1 show that fruits served without sugar or cream are preeminent among the desserts which meet these requirements.

DESSERTS FOR YOUNG CHILDREN

To provide adequate amounts of essential food constituents the diets of normal, healthy children usually should contain the following "protective" foods in approximately the quantities listed:

Milk, three or four cups daily.

Vegetables, two servings daily; if possible two besides potatoes. Green or yellow vegetables at least three or four times a week and preferably daily.

Fruit, one or two servings every day, with emphasis on citrus fruit or tomato juice. At least one of the fruits or vegetables should be served raw, particularly if citrus fruits or tomatoes are not readily available.

Three or more pats of butter or of oleomargarine which has been fortified with vitamin A. (Unfortified oleomargarine is undesirable in the diets of children because of its lack of vitamin A.)

Whole-grain cereal or whole-wheat bread or its nutritional equivalent in "restored" products, at least one and preferably two or more servings daily.

One or two servings of a protein-rich food other than milk, especially as the child grows older.

These foods alone will supply, in the portions suited to the young child, from approximately 1,200 to 1,800 calories. The total calory requirements of normal, active preschool children are of approximately the same order of magnitude. Thus it is apparent that, if the necessary nutritional values are to be provided, the diets of young children should not be "diluted" with desserts or other foods which serve only as a source of calories. If a dessert is to be included in the young child's diet it should carry its full share of the various dietary essentials.

In the distribution of the essential foods in the simple menus appropriate for the preschool child the citrus fruit or tomato juice, which serves as the main source of vitamin C, is customarily given as the breakfast fruit or as a part of a regularly scheduled midmorning feeding. The second portion of fruit, if two portions are given, may serve as the dessert for either the noon or the evening meal. The fresh or cooked fruit is best served alone and undiluted. Occasionally, for variety, the slightly sweetened undiluted fruit juice may be stiffened with gelatin and served with a suitable topping, or the fruit may be combined with other appropriate ingredients in the preparation of a simple pudding.

Milk also lends itself to the preparation of a wide variety of desserts, in which it may be used alone or combined with other essential foods such as eggs, whole grain cereal, and fruit or fruit juices. Such use of milk not only provides a satisfying and appetizing finish to the meal but affords an opportunity to vary the form in which this essential food is fed. This is frequently an important factor in inducing children to take the amounts of milk which are considered desirable.

REQUIREMENTS FOR ACCEPTED DESSERT PRODUCTS FOR YOUNG CHILDREN

There now are being marketed a number of prepared dessert products intended for feeding to invalids or to young children. No federal standards for the composition of these products as a class have been established. The Council, in considering such commercial products, has found it necessary to arrive at some nutritional standards for acceptable products in this group.

Acceptable commercial dessert products intended for use in the feeding of children or invalids should not be nutritionally

inferior to home-made desserts which are considered suitable for this purpose. The average proportions by weight of milk, fruit or fruit juice and other ingredients used in the home or institutional preparation of several simple desserts, which are suitable for young children, are listed in table 2. This table shows that the majority of these products contain at least 75 per cent of milk or fruit or of a combination of milk and fruit (or undiluted fruit juice) and that none contain less than 50 per cent of these ingredients. These proportions are therefore considered representative of good practice in the preparation of children's desserts.

On the basis of these facts and of the considerations discussed in the foregoing paragraphs, the Council has reached the decision: To be acceptable to the Council, commercial dessert products represented for use in the feeding of young children must contain milk or fruit or a combination of these two ingredients in amounts which constitute at least 50 per cent of the total weight of the product. Prepared desserts which contain less than 50 per cent by weight of milk or fruit or a combination of milk and fruit are not considered eligible for acceptance or for description in the book *Accepted Foods and Their Nutritional Significance*.

ACCEPTED FOODS

THE FOLLOWING ADDITIONAL FOODS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO ACCEPTED FOODS.

FRANKLIN C. BING, Secretary.

PREPARATIONS USED IN THE FEEDING OF INFANTS (See Accepted Foods, p. 156).

H. J. Heinz Company, Pittsburgh.

HEINZ BRAND APPLE, FIG AND DATE DESSERT, a canned cooked mixture of apples, figs, dates, sugar and lemon juice.

Analysis (submitted by manufacturer).—Moisture 74%, total solids 26%, ash 0.6%, fat (ether extract) 0.2%, protein ($N \times 6.25$) 0.6%, crude fiber 1.0%, carbohydrates other than crude fiber (by difference) 23.6%, sucrose (Munson and Walker method) 21.3%, calcium (Ca) 0.039%, phosphorus (P) 0.019%, iron (Fe) 0.0027%, copper (Cu) 0.00012%.

According to report of biologic assay (1939) this product contains 7 international units of vitamin A, 6 international units of vitamin B₁ and 17 Sherman-Bourquin units of riboflavin per hundred grams. Report of chemical titration (1939) shows that the product contains 50 international units of vitamin C per hundred grams.

Calories.—1 per gram; 28 per ounce.

HEINZ BRAND LAMB AND LIVER STEW WITH MILK AND CEREALS, a canned cooked mixture of milk, white potatoes, lamb, celery, lamb livers, cream, carrots, rice, onions, corn starch, chicken livers, and sodium chloride.

Analysis (submitted by manufacturer).—Moisture 84.7%, total solids 15.3%, ash 1.3%, fat (ether extract) 2.2%, protein ($N \times 6.25$) 2.9%, crude fiber 0.7%, total carbohydrates other than crude fiber (by difference) 8.2%, sucrose (Munson and Walker method) 1.7%, calcium (Ca) 0.065%, phosphorus (P) 0.063%, iron (Fe) 0.0055%, copper (Cu) 0.00018%.

According to report of biologic assay (1939) this product contains 3,100 international units of vitamin A, 9 international units of vitamin B₁ and 73 Sherman-Bourquin units of riboflavin per hundred grams. Report of chemical assay (1939) shows that the product contains 64 international units of vitamin C per hundred grams.

Calories.—0.64 per gram; 18 per ounce.

HEINZ BRAND PINEAPPLE RICE PUDDING, a canned cooked mixture of crushed pineapple, milk, sugar, rice, eggs, cornstarch and sodium chloride.

Analysis (submitted by manufacturer).—Moisture 70.3%, total solids 29.7%, ash 0.7%, fat (ether extract) 0.6%, protein ($N \times 6.25$) 0.3%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 27.8%, sucrose (Munson and Walker method) 17.5%, calcium (Ca) 0.051%, phosphorus (P) 0.033%, iron (Fe) 0.0014%, copper (Cu) 0.00008%.

According to report of biologic assays (1939) this product contains 38 international units of vitamin A, 9 international units of vitamin B₁ and 28 Sherman-Bourquin units of riboflavin per hundred grams. Report of chemical titration (1939) shows that this product contains 16 international units of vitamin C per hundred grams.

Calories.—1.18 per gram; 34 per ounce.

HEINZ BRAND PRUNE PUDDING, a canned cooked mixture of milk, prune pulp, sugar, farina, eggs, cornstarch and sodium chloride.

Analysis (submitted by manufacturer).—Moisture 70%, total solids 30%, ash 1%, fat (ether extract) 1.2%, protein ($N \times 6.25$) 2.4%, crude fiber 1.2%, carbohydrates other than crude fiber (by difference) 24.2%, sucrose (Munson and Walker method) 17.3%, calcium (Ca) 0.069%, phosphorus (P) 0.054%, iron (Fe) 0.0011%, copper (Cu) 0.00016%.

According to report of biologic assay (1939) this product contains 300 international units of vitamin A, 10 international units of vitamin B₁ and 70 Sherman-Bourquin units of riboflavin per hundred grams. Report of chemical titration (1939) shows that the product contains 64 international units of vitamin C per hundred grams.

Calories.—1.17 per gram; 33 per ounce.

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SATURDAY, FEBRUARY 8, 1941

HEALTH AND PHYSICAL EDUCATION UNDER FEDERAL SUPERVISION

During the closing days of the last Congress a measure was submitted, under the sponsorship of the American Association for Health, Physical Education and Recreation, proposing federal appropriations totaling eventually \$200,000,000 a year "to promote national preparedness and the national welfare" by assisting the several states and territories in making adequate provisions for "health education, physical education and recreation in schools and school camps." The framework of this bill followed the customary pattern of federal subsidy legislation. State plans were to be submitted by state educational authorities for approval by the federal official to be charged with the administration of the bill, the United States Commissioner of Education. Throughout the proposal references were made to the important problem of health education of persons between the ages of 5 years and 20 years in schools and in school camps. A state school plan was required to provide, among other things, for a continuous school health service, exclusive of medical and dental treatment, to determine at least annually the health status of each pupil, for special health instruction for handicapped children, for health supervision to insure safe and sanitary school conditions "and processes for healthful living," and for instruction in nutrition, dental hygiene, first aid, effects of narcotic drugs and alcohol, and physical and mental hygiene. Similarly, in plans for school camps instruction in matters relating to health was to play an important role. Scant suggestion was to be found in the bill that the services of those most competent to deal with health problems, whether in schools, in school camps or elsewhere, were to be utilized in making effective its stated objectives. This measure did not receive congressional consideration and consequently died when the Congress automatically expired. Now a similar bill, in a modified form, is before the new Congress, H. R. 1074, introduced by Representative Schwert of New York. In its structure it follows its prototype, but specific references

to problems of health education such as those mentioned have been omitted. There has been added, however, a most unusual provision to the general effect that the scope of the activities to be carried on under the bill may be extended in a particular state apparently without any limit whatever if the legislature of that state decrees. Thus any state legislature could add the medical features which have been eliminated from the federal measure. The proposal suggests a most ambitious program, which is offered for prompt action as a part of national preparedness. No doubt hearings can be held to determine the need for the measure and the scope of activities it is planned to embrace.

This legislation is symptomatic of a widespread movement in physical education. The College Physical Education Association¹ has adopted a report of a special committee in which the importance of physical education to the defense of democracy is emphasized. This report points out that physical education includes programs of health education and physical education. It presents a series of recommendations for national organization and legislation, for defining the responsibilities of the association, for outlining local programs, for activity programs, for military training and drill, for health instruction, for health service and for professional training. In brief, the College Physical Education Association holds that it should study every piece of proposed federal legislation in this field and support "desirable federal legislation aimed at the improvement of the health of the people and the development of physical education, health education and recreation in the several states." The services of its members are offered to the federal defense authorities and the War and Navy departments and to the National Defense Council, as well as to the United States Public Health Service and to the United States Civil Service Commission for use in the development of national, state or local programs in health education or recreation. Cooperation is tendered also to other physical, health education and recreational associations "and others." The proposal recommends "that, in the main, no radical or sharp departures in the content of local programs be advised," but that efforts be made "to intensify and improve the activity programs" now under way. Extensive recommendations are made for activity programs, health instruction and health service, endorsing both military training and physical education but holding that neither should be regarded as a substitute for the other.

Under health service, thorough physical examinations and immunization programs are recommended, and it is suggested that all physical education activities be conducted in accordance with the results of medical examinations. The report recommends "that the col-

1. Report of the Committee on the Contribution of College Physical Education to National Preparedness, New York, College Physical Education Association, Dec. 30, 1940.

lege assume some responsibility for making appropriate medical or surgical service available to all students in need thereof." It urges that all opportunities be seized for the improvement of professional training.

The American Legion has published a national program of preparedness and defense through physical education, health education and recreation in schools and communities.² This is a twenty-nine page letter to its national and state offices outlining the program, of which the salient feature is that the legion stands ready to cooperate with existing agencies in the improvement and extension of existing programs in health education, physical education and recreation.

Physicians look with sympathetic interest on the desire to improve the health education and physical status of the American people and on contributions to wholesome recreations. They approve such proposals as the coordination of physical activities with medical observations and the promotion of programs of preventive medicine and dentistry, as well as the wider dissemination of information about healthful living. Physicians approve especially plans which wisely utilize, extend and improve the good work that is now being done. They oppose the expenditure of large sums of money on experimental programs or activities which call on unqualified persons to perform functions which belong in the medical sphere. The national defense will not be served merely by the injudicious increase of expenditures. The American people, as *THE JOURNAL*³ has already pointed out, is not a nation of physical weaklings, even though it may not have achieved a maximum of good health and physical fitness.

THE OXFORD TUBERCULOSIS VACCINE

Among the basic medical researches interrupted by the present European war, none are of greater clinical interest than the Oxford University¹ studies of the vole acid-fast bacillus as a prophylactic vaccine against human or bovine tuberculosis. Although the experimental evidence thus far collected by Wells and Brooke is regarded by them as statistically inconclusive, their evidence is nevertheless sufficiently striking to warrant the hope that the vole vaccine may in time prove to be of clinical value.

Three years ago Wells,² of the Sir William Dunn School of Pathology, Oxford University, described a fatal tuberculosis-like disease of the wild voles of the British Isles, from which he isolated a hitherto undescribed acid-fast bacillus. The vole bacillus grows

readily on Dorset's egg medium and will reproduce fatal tuberculosis-like disease if injected subcutaneously into laboratory bred voles but is almost devoid of pathogenicity for rabbits or guinea pigs. Massive doses (e. g. 5 to 10 mg.) of the living bacillus injected subcutaneously into guinea pigs may occasionally produce progressive disease and death. A smaller inoculum (e. g. 1 mg.) usually produces only a local abscess with occasional ulceration, which invariably heals spontaneously.

In their initial test of the immunizing power of this bacillus, a group of 3 guinea pigs was inoculated in the left groin with caseous material from naturally infected wild voles. Each guinea pig developed a local caseous lesion, but there was no sign of a generalized infection. Nine months later, after complete healing of the local lesion, each guinea pig, together with normal control, was injected in the opposite groin with 10^{-6} mg. of a month old culture of bovine tubercle bacilli of low virulence. The animals were killed six months later. Necropsies of the control group revealed extensive generalized tuberculosis involving the lungs, liver, spleen and lymph glands. With one exception the vole-vaccinated guinea pigs showed no involvement of the internal organ, the only macroscopically demonstrable lesion being a small local caseous nodule in the right groin.

The test was then repeated on a larger scale, a freshly isolated highly virulent strain of human tubercle bacilli being employed as the test organism. One group of 5 guinea pigs was vaccinated with 1 mg. of the vole bacillus. A second group received one tenth of this dose. Three months later both groups, together with an equal number of unvaccinated controls, were inoculated with 10^{-2} mg. of highly virulent human tubercle bacilli. All nonvaccinated controls died within three months, necropsies showing extensive generalized tuberculosis. Both vaccinated groups were killed at this time. None of the animals receiving the larger dose of the vole vaccine had developed demonstrable internal lesions, necropsies showing only a small local abscess. Among the animals receiving a tenth dose of the vole vaccine, only 1 developed a partially generalized tuberculosis, all others showing only a regressive local lesion. A single 1 mg. dose of the vole vaccine apparently gave almost complete immunity, with a less effective prophylaxis from a tenth of this vaccine dose.

In order to form a basis of prediction for the probable clinical value of the vole vaccine, each of a group of 52 guinea pigs was given four weekly injections of 0.5 mg. doses of the vole bacillus. Each of a group of 30 control guinea pigs was given four 7.5 mg. doses of BCG. Previous studies had shown that this dose of BCG is the optimum immunizing dose for guinea pigs. Five months after the last injection, half of the sur-

2. The National Program of Preparedness and Defense Through Physical Education, Health Education and Recreation in School and Community, American Legion, Jan. 10, 1941.

3. Health of Young Men Under Selective Service, editorial, *J. A. M. A.* 116: 54 (Jan. 4) 1941.

1. Wells, A. Q., and Brooke, W. S.: *Brit. J. Exper. Path.* 21: 104 (April) 1940.

2. Wells, A. Q.: *Lancet* 1: 1221 (May 22) 1937.

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

ESTABLISHMENT OF A BOARD FOR THE INVESTIGATION OF INFLUENZA AND OTHER EPIDEMIC DISEASES IN THE ARMY

Following is a statement sent by Surgeon General James C. Magee to the Adjutant General on Dec. 27, 1940:

The present expansion of the Army has been accompanied by an increase in influenza and other acute respiratory diseases among troops. In certain localities these diseases have reached epidemic proportions, but fortunately they are still relatively mild and their mortality is low. However, if we may judge from the experience of previous mobilization, this comparatively favorable condition probably will not continue. As larger numbers of selectees are brought together, the rapid passage of infection from one individual to another will probably cause an increase in prevalence, virulence and fatal complications. In fact, the possibility cannot be ignored that the Army may again be confronted by another pandemic of influenza of the virulent type which caused such a large proportion of the total deaths among our troops during the last war.

During that period one of the important agencies utilized in the campaign against infectious diseases consisted of special boards composed of the most competent specialists available in the country, either military or civilian, whose function it was to study such conditions among troops and to advise the Surgeon General as to methods of prevention and treatment. An outstanding example was the "Pneumonia Board" appointed in 1918 (Special Order 118, W. D., May 20, 1918). This board, which met at irregular intervals in Washington at the call of the Surgeon General, not only rendered advisory service of inestimable value but organized and directed the studies of groups of expert epidemiologists, bacteriologists, chemists and pathologists, who were sent to certain camps and hospitals to investigate and combat this disease.

Since the World War our knowledge of the acute respiratory diseases has been increased enormously. We now know that certain of the interpandemic types of influenza are caused by filtrable viruses, and as these viruses can now be isolated it seems probable that eventually it may be possible to develop specific methods for their prevention. In view of the progress made recently in the study of these diseases, which are of such vital importance to the health and welfare of American troops, it is considered of urgent importance that the Army make immediate arrangements to utilize every scientific facility available in this country in a concerted effort to control these diseases and to reduce their mortality to a minimum.

With this objective in view, authority is requested for the Surgeon General to appoint and maintain a board for the investigation of the etiology, epidemiology, prevention and treatment of influenza and other acute epidemic diseases in the Army, this board to consist of such prominent physicians and other scientists as may be required from time to time, regardless of whether or not they are in the military establishment or other federal services or civilians not in the employ of the federal government. Because of the rapidity with which the respiratory diseases strike and the explosive nature of certain of the epidemics, it is essential that the organization of the board be made flexible and that its activities not be hampered by unnecessary administrative delays.

It is therefore recommended that this board be formed essentially as follows:

(a) *Organization and Personnel.*—That the board consist of (1) a central body of such scientists and technicians as may be

required, which will meet at the call of the Surgeon General; (2) an additional group of such expert scientists and technicians as may be required as consultants, who will meet with the central body when called on individually by the president of the board; and (3) investigative teams, the number to be determined by the disease situation, each consisting of three or more scientists and technicians, who may be sent for temporary duty at military stations when deemed advisable by the Surgeon General for the study and control of epidemics. It is important that the total personnel for the board not be limited at this time but that it be subject to change from time to time as the Surgeon General may deem necessary to meet any emergency disease situation which may arise in the Army.

(b) *Status of Civilian Personnel.*—That the civilian members of the board who are not federal employees be paid transportation expenses and \$20 a day while on temporary active duty at meetings or on investigative assignments with military organizations.

(c) *Procedure.*—That the central body of the board hold meetings from time to time, at times and places designated by the Surgeon General, in order to study the available current information concerning epidemic disease in the Army, and to formulate and recommend to the Surgeon General plans for its further study and control.

(d) *Control.*—That when the Surgeon General selects a team to investigate an epidemic at a military station the personnel of the team will be ordered to report to the proper local authority for temporary duty and will remain under that authority until the work is completed. The investigators will conduct their studies according to instructions from this office with as little interference as possible with the routine care of the sick. They will have the privilege of direct communication with the Surgeon General through technical channels on technical matters, and all other communications will be routed through regular military channels. A final report of the results of each investigation will be submitted to the Surgeon General through the main body of the board.

This establishment of this board will make available to the Army the scientific resources of the country to assist in the program for the control of influenza and the other epidemic diseases which will undoubtedly arise in our expanding army. Incidentally, its existence will undoubtedly be a matter of great satisfaction to the citizens of the country, who, remembering the tragic experience of the Army with influenza in 1918, are so vitally concerned over the possibility of a repetition of that experience. Therefore, from the viewpoint both of developing an effective agency for the study and control of this disease and the national morale, authority for the immediate formation of this board is urgently requested.

JAMES C. MAGEE,
Major General, U. S. Army,
the Surgeon General.

On Jan. 11, 1941, the plan was approved with the following memorandum:

War Department, A. G. O., January 11, 1941—To the Surgeon General.

The plan outlined in the basic letter for the establishment of a board for the investigation of influenza and other epidemic diseases in the Army is approved, except that civilian members of the board who are not federal employees will be paid not to exceed \$20 per diem for any person so employed and necessary traveling expenses.

By order of the Secretary of War:

A. P. SULLIVAN, Adjutant General.

CHEMOTHERAPY FOR INFECTIOUS
DISEASES AND OTHER
INFECTIONS

CIRCULAR LETTER NO. 81

The data on which this circular letter is based have been prepared by the Committee on Chemotherapeutic and Other Agents and the Subcommittee on Infectious Diseases, of the Division of Medical Sciences, National Research Council. The Committee on Chemotherapeutic and Other Agents, chairman, Perrin H. Long, consists of Perrin H. Long, professor of preventive medicine, Johns Hopkins University School of Medicine, Baltimore; Francis G. Blake, professor of medicine, Yale University School of Medicine, New Haven, Conn.; John S. Lockwood, instructor in surgery, University of Pennsylvania School of Medicine, Philadelphia; J. F. Mahoney, senior surgeon, United States Public Health Service, Venereal Division, Research Laboratory, Staten Island, N. Y., and E. K. Marshall Jr., professor of pharmacology and experimental therapeutics, Johns Hopkins University School of Medicine, Baltimore. The subcommittee on infectious diseases, chairman, Francis G. Blake, consists of Francis G. Blake, professor of medicine, Yale University School of Medicine, New Haven, Conn.; Rolla E. Dyer, senior surgeon, United States Public Health Service, National Institute of Health, Washington, D. C.; Henry Helmholtz, professor of pediatrics, University of Minnesota Graduate School, and the Mayo Clinic, Rochester, Minn.; Chester S. Keefer, professor of medicine, Boston University School of Medicine, Boston; Stuart Mudd, professor of bacteriology, University of Pennsylvania School of Medicine, Philadelphia, and Thomas M. Rivers, director of the Hospital of the Rockefeller Institute for Medical Research, New York.

In compliance with a request from the Surgeon General, the National Research Council appointed a committee to summarize the present status of chemotherapy with a view to its application in the treatment of military personnel. The following outline records briefly the opinions and recommendations of that committee concerning infections and infectious diseases. Because of the rapid development of chemotherapeutic agents, it is likely that some of these recommendations will have to be modified from time to time. Certain measures other than chemotherapeutic are described briefly when it seems appropriate. However, it is impracticable, except in a broad way, to delineate the therapy of persons suffering from various infections. This outline is published, therefore, as a general guide for medical officers and is to be used at their discretion, with due consideration of all other factors which may be presented by each individual case. It is not intended that it will be used to the exclusion or neglect of other indicated therapeutic or nursing procedures.

The Medical Department will continue to supply therapeutic serums for patients who are sensitive to chemotherapeutic agents and for those who in the opinion of the responsible medical officer may be advantageously treated with such serums.

Therapy for the following conditions is discussed: (1) hemolytic streptococcus infections, (2) scarlet fever, (3) meningococcal meningitis, (4) purulent meningitis, (5) pneumonia, (6) gas bacillus infections and (7) staphylococcal infections.

HEMOLYTIC STREPTOCOCCUS INFECTIONS

(a) *Mild or Moderately Severe Hemolytic Streptococcus Infections, Such as Erysipelas; Mild Cellulitis and Tonsillitis.*

Specific treatment:

Sulfanilamide: Recommended as the drug of choice. Initial dose (oral): 2 Gm. Subsequent doses: 1 Gm. every four hours day and night, until five days of normal temperature have elapsed. (The subsequent dosage may be modified after forty-eight hours of normal temperature at the discretion of the medical officer.) Then stop the use of the drug.¹

(b) *Otitis Media.*—This condition is generally caused by hemolytic streptococci but may be caused by pneumococci or other organisms and presents a special case. Treatment should be started as outlined in the foregoing section; bacteriologic cultures should be made and if the infecting organism turns out to be a pneumococcus or a staphylococcus sulfathiazole should be substituted, the dose being 1 Gm. every four hours, day and night, until the patient's temperature has been normal for five days. Therapy should be continued by giving small doses, of 0.5 Gm. four times daily, for at least ten days after a clinical cure has been effected.

(c) *Severe Hemolytic Streptococcus Infections, Such as Meningitis, Septicemia, Severe Cellulitis, Acute Osteomyelitis and Acute Mastoiditis.*

Specific treatment:

Sulfanilamide: Recommended as the drug of choice. Initial dose (oral): 6 Gm. Subsequent doses: 1 Gm. every four hours, day and night, until the temperature has been normal for seven days. For acute streptococcal mastoiditis or osteomyelitis, administration of sulfanilamide should be continued in small doses of 0.5 Gm. four times daily for at least ten days after a clinical cure has been effected.

SCARLET FEVER

(a) *Active Immunization with Toxin.*—This procedure is not recommended for the following reasons:

1. High percentage of immune subjects among adults.
2. Five or more injections of toxin are usually required to produce immunity.

Exception: Active immunization should be used for nurses with positive reactions to Dick tests and for orderlies assigned to care for patients with scarlet fever.

(b) *Simple Toxic Scarlet Fever (Exanthematous Stage).*

Specific treatment:

1. Antitoxin: Recommended in all cases in which the disease is moderately severe to extremely severe and the patient is not hypersensitive to horse serum.²

1. The routine use of sodium bicarbonate is unnecessary in treatment with sulfanilamide and its derivatives. This applies wherever such therapy is recommended in this circular letter.

2. Serum should never be given to patients who have a history of asthma of any type or to those who have a history of hay fever. Whenever serum is administered, have a syringe containing 1 cc. of epinephrine hydrochloride, 1 to 1,000 solution, at the bedside of the patient in order that this drug may be injected rapidly if an anaphylactic reaction develops. Two tests for serum sensitivity are available, and it is frequently desirable to use both. The first consists of the intracutaneous injection of 0.1 cc. of a solution of the serum diluted 1 to 10 in sterile physiologic solution of sodium chloride. The reaction is positive if at the end of twenty minutes the wheal at the site of the injection has enlarged to the size of a nickel and has an area of redness about it. The second test is the conjunctival test. This consists of instilling 1 drop of a 1 to 10 dilution of the serum in sterile physiologic solution of sodium chloride inside the lower eyelid of the patient. If redness and swelling of that eye appear within twenty minutes, the reaction is positive. A positive reaction can be countered easily by instilling 1 or 2 drops of a 1 to 1,000 solution of epinephrine hydrochloride inside the lower eyelid, a procedure which should be followed with all positive reactors in order to prevent the rare instances of corneal ulceration. These tests are interpreted as follows: 1. If the ophthalmic and cutaneous reactions (Continued on page 514)

The antitoxin should be given in one dose as soon as the diagnosis is made, intramuscularly if the disease is moderately severe and intravenously if it is severe to extremely severe, according to the following schedule: moderately severe, 18,000 units; severe, 27,000 to 36,000 units, and very severe, 45,000 units.

2. Sulfanilamide: No therapeutic effect on the toxic stage. It should be used for prophylaxis of septic complications in the dosage of 0.5 Gm. four times daily for the period of quarantine.

(c) *Toxic and Septic Scarlet Fever (Exanthematous Stage).*

Specific treatment:

1. Antitoxin (globulin concentrated): Recommended as stipulated in the foregoing section. Patients with early septic lesions (purulent rhinopharyngitis, sinusitis, otitis media, mastoiditis or marked lymphadenitis, and so on) in general are actually or potentially more toxic than patients with simple toxic (uncomplicated) scarlet fever. The doses used should be larger, according to the following schedule: if the disease is moderately severe, 27,000 units; if severe, 45,000 units, and if very severe, 63,000 units.

2. Sulfanilamide: Recommended in addition to antitoxin for its chemotherapeutic effect on septic lesions. Initial dose: 6 Gm. Subsequent doses: 1 Gm. every four hours, day and night, until the temperature has been normal for five days; then 0.5 Gm. four times daily for the period of quarantine.

(d) *Late Septic Complications (Postexanthematous Stage).*

Specific treatment:

1. Antitoxin: Of no value; not recommended.

2. Sulfanilamide: Recommended; dosage and duration of treatment as given in the foregoing section.

(e) *Precautions.*

1. Antitoxin: The usual precautions employed in giving horse serum should always be used.² Serum disease may be expected in approximately 25 per cent of cases.

2. Sulfanilamide: Symptoms and signs of acute hemolytic anemia, neutropenia, drug fever, dermatitis and hepatitis should be watched for carefully and sulfanilamide stopped at once if they appear. (See also the last section of this circular letter, on toxic effects of drugs.)

MENINGOCOCCIC MENINGITIS

Specific treatment:

1. Serum: It is generally recommended that anti-meningococcus serum should not be used in the treatment of meningococcic meningitis. However, in individual cases, serum may be used if in the opinion of the medical officer it is indicated.

2. Chemotherapy: Sulfanilamide: Recommended as the drug of choice. The intrathecal administration of this drug is not indicated. Initial dose (oral): 6 Gm. Subsequent doses: 1 Gm. every four hours, day and night, until the temperature has been normal for seven days. Lumbar puncture is indicated only for diagnosis and subsequently only to relieve manifestations of increased intracranial pressure.

are negative, then antitoxin may be given by any route. 2. A definite wheal-like reaction, with surrounding erythema, indicates cutaneous sensitivity. 3. A positive ophthalmic reaction, with or without a positive intradermal reaction, indicates a probable systemic reaction. Serum should never be given if both the ophthalmic and the cutaneous reactions are positive and should be used only with the greatest of care if either the ophthalmic or the cutaneous reaction is positive. This warning also applies to the serum treatment of meningococcic meningitis, pneumococcic pneumonia and gas bacillus infections.

PURULENT MENINGITIS

In case the cause of a purulent meningitis is not promptly established, chemotherapy should, nevertheless, be instituted at once with sulfapyridine as follows:

Initial dose (oral): 4 Gm. Subsequent doses: 1 Gm. every four hours, day and night, until the temperature has been normal for seven days.

Sodium sulfapyridine should be used intravenously if oral treatment is impossible. If it is used, the initial dose is 0.06 Gm. per kilogram of body weight, made up in a 5 per cent solution in sterile, freshly distilled water. This solution is given slowly (fifteen minutes) by the intravenous route, care being taken not to get the alkaline material outside the vein, because if this occurs it will cause a slough. Solutions of sodium sulfapyridine should never be added to transfusion blood, solutions of sodium chloride or dextrose or other fluids for intravenous use. Subsequent doses should be calculated on the basis of 0.03 Gm. per kilogram of body weight and should be given by the intravenous route at six hour intervals; oral therapy with sulfapyridine should be started as soon as it is practicable.

PNEUMONIA

The specific prophylaxis and treatment of pneumonia are based on etiologic classification and diagnosis, which should be carried out promptly in all cases whenever laboratory diagnostic facilities are available.

Pneumonia is classified in two main groups: (1) primary, which occurs independently of any major predisposing cause, and (2) secondary, which occurs as a complication of a major predisposing cause, e. g. influenza, measles or pertussis.

Primary pneumonia is principally caused by the pneumococcus. Other bacteria, e. g. Streptococcus haemolyticus (beta), staphylococcus or Friedländer's bacillus, may occasionally be the cause.

Secondary pneumonia complicating such diseases as influenza or measles is of variable etiology, often mixed, sometimes indeterminate. The higher types of pneumococci, beta hemolytic streptococci and Haemophilus influenzae are the bacteria most frequently concerned. Staphylococci, the gram-negative micrococci and Str. viridans may be found.

(a) *Primary Pneumonia.*

1. Pneumococcic pneumonia (usually lobar).

Chemotherapy: Recommended as the method of choice in all cases for the following reasons: (1) highly effective, except in the aged with chronic disease; (2) effective against all types of pneumococci; (3) may be given at once without waiting for type determination; (4) administration technically simple and relatively inexpensive, and (5) also applicable to treatment of most bacterial pneumonia other than pneumococci.

Sulfathiazole is recommended as the drug of choice in all cases for the following reasons: (1) greatly superior to sulfanilamide in scope and effectiveness of therapeutic action; (2) at least equivalent to sulfapyridine in scope and effectiveness of therapeutic action; (3) causes much less nausea, vomiting and mental disturbance than sulfapyridine; (4) other untoward reactions are (probably) less frequent and less severe than with sulfapyridine, and (5) the problem of excessive acetylation is not encountered to the same degree as it is with sulfapyridine.

Administration of sulfathiazole should be started at once in all cases as soon as the clinical diagnosis is made, etiologic diagnosis being carried out at the same

time. Initial dose (oral): 4 Gm. Subsequent doses: 1 Gm. every four hours, day and night, until the temperature has been normal for seventy-two hours. In cases in which the disease is very severe, an initial dose of sodium sulfathiazole (5 per cent solution in sterile distilled water), amounting to 0.06 Gm. per kilogram of body weight, may be given *intravenously*. To patients unable to take sulfathiazole by mouth, intravenous treatment with sodium sulfathiazole (5 per cent solution in sterile distilled water) should be given. (The solution of sodium sulfathiazole need not be sterilized.) The initial dose of sodium sulfathiazole should be 4 Gm. Subsequent doses of 2 Gm. each should be given every six hours. Oral administration should be instituted as soon as possible.

bacteremia. If these amounts prove insufficient, subsequent doses of 100,000 units each should be given every eight hours.

Precautions: Force fluids to 3,500 cc. a day. The usual precautions employed in all intravenous serum therapy should be observed. Serum should not be given to hypersensitive persons.²

2. Hemolytic streptococcal pneumonia, Friedländer's bacillus pneumonia and staphylococcal pneumonia.

Sulfathiazole: Recommended in all cases. Method of treatment same as for pneumococcal pneumonia. Initial dose (oral): 4 Gm. Subsequent doses (oral): Begin with 1 Gm. every four hours; if response is not satisfactory, increase to 1.5 to 2 Gm. every four hours until improvement is definite; then reduce to 1 Gm.

*Manifestations of Toxicity Due to Drugs Noted in Hospitalized Patients**

Reaction	Drug		
	Sulfanilamide	Sulfapyridine	Sulfathiazole
Nausea and vomiting....	Fairly common	Frequent	Uncommon
Dizziness.....	Common	Common	Uncommon
Psychosis †.....	In 0.6% of cases; occurs early	In 0.3% of cases, occurs early	Very rare
Neuritis †.....	Very rare	Not reported	Rare
Cyanosis.....	Very common; occurs early and late	Faint; common; occurs early and late	Uncommon
Acidosis †.....	In 1.9% of cases; occurs at any time	Not reported	Not reported
Fever †.....	In 10% of cases, generally occurs on 5th to 9th day; may occur on 1st to 30th day	In 4% of cases, generally occurs on 5th to 9th day; may occur on 1st to 30th day	In 10% of cases, generally on 5th to 9th day
Rash †.....	In 1.9% of cases; may take any form; generally occurs on 5th to 6th day; may occur on 1st to 30th day	In 2% of cases; may take any form; generally occurs on 5th to 9th day; may occur on 1st to 30th day	5% of cases; nodular type common; may take any form; occurs on 5th to 9th day
Hepatitis †.....	In 0.6% of cases; occurs early or late	Not noted but reported	Rare
Leukopenia with granulocytopenia †	In 0.3% of cases; occurs early or late	In 0.6% of cases; occurs early or late	In 1.6% of cases; occurs early or late
Agranulocytic angina †..	In 0.1% of cases; occurs on 14th to 40th day; more frequent on 17th to 25th day	In 0.3% of cases; occurs on 14th to 40th day; more frequent on 17th to 25th day	Not reported but may occur
Mild hemolytic anemia....	In 3.0% of cases; occurs early and late	Rare	Not reported
Acute hemolytic anemia †	In 1.8% of cases; occurs on 1st to 5th day	In 0.6% of cases; occurs on 1st to 5th day	Very rare
Hematuria †.....	Not reported	In 8% of cases; generally occurs early	In 2.5% of cases; generally occurs early
Anuria with azotemia †..	Not reported	In 0.3% of cases; generally occurs during first ten days	In 0.7% of cases; generally occurs during first ten days
Hyperleukocytosis †.....	Generally in presence of acute hemolytic anemia	Generally in presence of acute hemolytic anemia	Not reported
Injection of sclerae and conjunctivae †	Not reported	Not reported	In 4.0% of cases; may occur with rash and fever; occurs on 5th to 9th day
Purpura haemorrhagica †	Not seen but reported	Not seen but reported	Not reported
Ocular and auditory disturbances †	Rare	Rare	Rare
Jaundice †.....	With acute hemolytic anemia or hepatitis	With acute hemolytic anemia or hepatitis	Rare
Painful joints †.....	Reported	Not reported	Reported, with rash
Stomatitis †.....	Rare	Not reported	Not reported
Disturbances in gastrointestinal tract †	Bleeding rare; diarrhea uncommon	Rare	Not reported

* The patients were adults; 1,000 were treated with sulfanilamide, 291 with sulfapyridine, and 271 with sulfathiazole.

† A sign that it is best to stop the drug and force fluids.

‡ A sign that it is imperative to stop the drug and force fluids.

Serum therapy: Homologous type antipneumococcus serum, preferably rabbit serum, recommended in addition to sulfathiazole therapy for: (1) patients with early stages of the disease (seventy-two hours after onset) only when they have failed to show satisfactory response to forty-eight hours of chemotherapy (this happens rarely) and (2) patients with late stages of the disease (seventy-two hours after onset), clinically unusually severe, who presumptively have bacteremia or who have failed to respond to chemotherapy alone.

Method of treatment: If the patient is not hypersensitive to serum (see footnote 2), it is recommended that an initial dose of 200,000 units of antipneumococcus rabbit serum of homologous type be given intravenously to patients with early stages of the disease who have not responded to chemotherapy and an initial dose of 300,000 units to those with late stages of the disease, in a severe form, who presumptively have

every four hours and continue until the temperature has been normal for five days.

Sodium sulfathiazole: Same as in cases of pneumococcal pneumonia.

Precautions: Same as those taken in cases of pneumococcal pneumonia.

(b) *Secondary Pneumonia.*

Prophylaxis: The possible value of chemotherapy with sulfanilamide and its derivatives in the prevention of bacterial pneumonia complicating such diseases as influenza and measles is not known at present. Specific recommendations are therefore not justified.

Chemotherapy: Sulfathiazole is recommended in all cases in which pneumococci, hemolytic streptococci, staphylococci or Friedländer's bacilli are found and believed to be of etiologic significance. The method of treatment, the dosage and the precautions are the same as in cases of primary pneumonia.

Comment: Chemotherapy with sulfanilamide and its derivatives is of no demonstrated value for many patients with bronchopneumonia of indeterminate (virus?) etiology; it is also of no demonstrated value against pulmonary infections with *Str. viridans* or *Haemophilus influenzae*. Results in treating secondary pneumonia, which is often due to a mixed infection, will, therefore, be variable, often disappointing and difficult to evaluate, even when bacteria known to be susceptible to the action of the sulfanilamide compounds are present in the patient's sputum.

GAS BACILLUS INFECTIONS

It is recommended that all rational surgical procedures, such as débridement, be carried out as soon as possible and that all necessary supportive treatment be administered.

(a) Serum Therapy.

In the light of present knowledge concerning the value of polyvalent tetanus-gas bacillus antitoxin in the prophylaxis and treatment of gas gangrene, it is recommended that the prophylactic and therapeutic use of these serums be considered when in the opinion of the attending medical officer their use for a given patient is indicated.

Prophylactic dosage: Polyvalent tetanus-gas gangrene antitoxin 5,500 units.

Therapeutic dosage: 20,000 to 40,000 units or more given intravenously, supplemented, if need be, by intramuscular injections. These doses may be repeated in from twelve to twenty-four hours, depending on the symptoms and the response of the patient to the initial dose.

(b) Chemotherapy.

(1) **Prophylaxis:** Sulfanilamide recommended *at present* as the drug of choice. Initial dose (oral): 6 Gm. Subsequent doses: 1 Gm. every four hours, day and night, for seven days or until definitive treatment is available. This period of therapy almost always eliminates the possibility of gas bacillus infection.

(2) **Treatment:** Sulfanilamide recommended *at present* as the drug of choice. Initial dose (oral): 6 Gm. Subsequent doses: 1 Gm. every four hours, day and night, should be given until the temperature has been normal for forty-eight hours; then 0.5 Gm. every four hours, day and night, until convalescence is completely established.

Crystalline sulfanilamide may be used *locally*, 0.1 Gm. per square inch of treated surface.

STAPHYLOCOCCIC INFECTIONS

(a) Localized Boils and Carbuncles.

(1) **Small furuncles:** Apply hot wet dressings until definite fluctuation develops. Lesions which do not evacuate themselves spontaneously after becoming fluctuant should be promptly incised and drained. Chemotherapy is not recommended for these minor staphylococcic infections.

(2) **Large boils and carbuncles:** Administer sulfathiazole in an initial dose of 4 Gm. and 1 Gm. every four hours thereafter for seven days. Apply hot fomentations. Incise as necessary after fluctuation develops in order to encourage the evacuation of necrotic slough. Avoid incision of uninfected tissue or of diffuse cellulitis.

(b) **Diffuse Cellulitis, Lymphangitis and Acute Osteomyelitis.**

1. Immobilize the infected part in a splint and elevate it continuously.

2. Apply bulky gauze dressing, wet with saline solution, and keep dressing warm, if possible.

3. Give sulfathiazole: Initial dose: 4 Gm., followed by 1.5 Gm. every four hours thereafter. Continue use of the drug at this dose level as long as evidence of spreading infection continues; then reduce the dose to 1 Gm. every four hours and continue for at least seven days.

4. Employ surgical treatment for any areas of localized suppuration which may develop.

(c) *Staphylococcic Bacteremia.*

1. Give sulfathiazole: Initial dose: 4 Gm., followed by 1.5 Gm. every four hours until the patient's temperature has been normal for forty-eight hours. Then reduce the dose to 1 Gm. every four hours and continue at this level for fourteen days. The likelihood of relapse is great unless prolonged, continuous chemotherapy is employed.

2. Make every effort through careful clinical and roentgen examination to identify foci of distribution and localization. These should be treated by surgical drainage if they are accessible. Sulfathiazole may control invasive manifestations of infection but will not, by itself, bring about a cure of areas of localized infection, and reinvasion from such areas is likely if they are not drained.

(d) *Chronic Staphylococcic Suppuration (as in Chronic Osteomyelitis).*

1. Maintain drainage by packing with petrolatum gauze to the depths of the wound until sequestration of necrotic bone and tissue has occurred and the wound is covered with clean granulations.

2. Oral administration of sulfathiazole is not of much value. Local application of powdered sulfathiazole may be helpful but is still in the experimental stage and cannot be definitely recommended.

TOXIC EFFECTS FROM ADMINISTRATION OF DRUGS

In the table are listed some of the toxic effects which have been noted when treatment with sulfanilamide or one of its derivatives has been employed.

It is to be recommended that when possible laboratory control of bacterial chemotherapy be carried out, but inability to do examinations of the blood and urine should never be considered a contraindication to the use of the sulfanilamide compounds. If facilities are available, hemoglobin determinations should be done every other day during the first week of treatment and once a week thereafter. Total and differential white blood cell counts should be done every other day for the first seven days and (particularly important) if the patient continues treatment with sulfanilamide or its derivatives, every two days between the fourteenth and the fortieth day. Examinations of the urine should be done on alternate days for patients who are receiving sulfapyridine or sulfathiazole. The urine should be examined microscopically for blood. The output of urine of patients being treated with sulfathiazole or sulfapyridine for serious infections should be recorded daily. Patients receiving sulfanilamide compounds should be seen at least once a day and should be questioned as to the presence of headache or malaise. These are frequently important early symptoms of toxic reactions. Patients should be inspected at each visit for the presence of jaundiced scleras (acute hemolytic anemia or hepatitis), pale mucous membranes (acute hemolytic anemia) or rash. The temperature should be recorded. If fever occurs after the patient's temperature has been normal in the course of treatment with

sulfanilamide or one of its derivatives, the drug should be discontinued immediately or if recently discontinued should not be resumed unless it has been demonstrated that the fever is due to a recurrence of the infection. Whenever therapy with the sulfanilamide drugs is stopped because of a drug reaction, fluids should be forced so that 5,000 cc. a day is taken in order to wash out the drug.

Agranulocytosis is extremely rare before the fourteenth day of therapy. It is imperative that total and differential white cell counts be made for patients still under treatment after the fourteenth day, every two days from the fourteenth to the fortieth day. If the

percentage of polymorphonuclear leukocytes falls to 50 per cent or less in an adult patient, the drug should be stopped immediately. Granulocytopenia without acute agranulocytosis may occur.

Any patient who has had a toxic reaction to one of the sulfanilamide group of drugs may have a second, and more severe, reaction if one of these drugs is prescribed again. To such patients a small test dose of the drug (0.1 to 0.3 Gm.) should be given and the patient observed for twelve hours before intensive therapy is started, following which the patient must be carefully observed and the drug immediately stopped on the first appearance of any toxic manifestation.

SYMPOSIUM ON MILITARY MEDICINE

The California Medical Association and the San Diego County Medical Society sponsored a symposium on military medicine in San Diego February 1-2, under the chairmanship of Captain Chambers, commanding officer, U. S. Naval Hospital, who was supported by Capt. John D. Manchester, U. S. Navy, medical corps, retired; Rear Admiral Charles A. Blakeley, commandant of the eleventh naval district, and Major General William P. Upshur, commandant of the marine base. The speakers were:

Dr. Harry H. Wilson, Los Angeles, Greetings from the State Medical Association.

Dr. Philip K. Gilman, San Francisco, Status of Medical Preparedness in California.

Lieut. Col. Bert S. Thomas, Sacramento, Selective Service Plans in California.

Capt. William L. Mann, Combined Operations of Naval Medical Department Unit with Land and Sea Forces.

Capt. Griffith E. Thomas, The Medical Side of Naval Recruit Training.

Capt. Frederic L. Conklin, Surgery in Modern Warfare.

Comdr. Louis H. Roddis, The Training of Hospital Corpsmen in the Navy.

Comdr. Joel J. White, Some Aspects of Aviation Medicine.

Comdr. Eugene L. Walter, The Dental Side of Naval Recruit Training.

Lieut. Comdr. John F. Luten, Venereal Diseases and National Defense.

MEETINGS OF INDUSTRIAL HYGIENISTS

The annual meeting of the National Conference of Governmental Industrial Hygienists will be held in Bethesda, Md., February 17-18 rather than in May in order to develop a coordinated industrial hygiene program for defense industries. The conference will discuss ways in which the state industrial hygiene units, the Division of Industrial Hygiene and the Subcommittee on Industrial Health and Medicine can cooperate most effectively in maintaining and improving the health of employees in industries producing materials essential to the national defense.

The Rocky Mountain Industrial Hygienists will hold a conference in Idaho Falls, Idaho, the early part of February, for the purpose of discussing industrial hygiene problems, especially as they relate to national defense. Representatives from Utah, Colorado, Wyoming, Montana and Idaho will participate in the conference.

NURSES NEEDED FOR IMMEDIATE ASSIGNMENT

The War Department has announced that three hundred and twenty-five nurses are needed for assignment by February 15 to staff the hospital at the following training centers, which will be occupied by troops by the early part of March:

Fort Devens, Mass., First Division, Regular Army, one hundred and twenty nurses.

Indiantown Gap Military Reservation, Pa., Twenty-Eighth Division, Pennsylvania National Guard, eighty-five nurses.

Camp Forrest, Tenn. (formerly Camp Peay), Thirty-Third Division, Illinois National Guard, one hundred and twenty nurses.

LIBRARY ON MILITARY MEDICINE PRESENTED TO YALE

Dr. John F. Fulton, Sterling professor of physiology, Yale University School of Medicine, New Haven, Conn., has presented to the Yale Medical Library a collection of all books and government documents bearing on military medicine published in England since the beginning of the war. There are about fifty items in the group plus a collection of all the reports of the Medical Research Council on various phases of industrial medicine. In the latter series there are about seventy titles. The collection is now available in the new Reading Room of the General Medical Library in the Sterling Hall of Medicine.

PHARMACEUTICALS TO BRITAIN

The Western New York branch of the American Pharmaceutical Association recently conducted a campaign to collect drugs and medicinal preparations to send to England. Donations included one million aspirin tablets from one manufacturer, 7,500 tablets of sulfanilamide from another, varying amounts of vitamin preparations and supplies such as gauze, adhesive tape, hypodermic needles, cotton, rubber gloves and antiseptics. Pharmacy students at the University of Buffalo collected the donations as their contribution to the campaign.

LITERATURE ON MILITARY MEDICINE

The library of the Medical Society of the County of Kings, New York, has compiled a list of its publications on military, naval and aviation medicine. The list includes more than fifty books, manuals, pamphlets and reprints. In addition, the library keeps on file a number of current periodicals devoted wholly or partly to military medicine.

MORE HOSPITAL FACILITIES AT FORT SHERIDAN

The War Department authorized, January 7, the construction of additional hospital facilities at Fort Sheridan, Illinois, which will provide from one hundred and eighty-four to two hundred and sixty-nine additional beds and cost about \$295,500.

LECTURES ON MEDICAL PREPAREDNESS

The Philadelphia County Medical Society has begun its second series of lectures on medical preparedness, arranged by the committee on national defense. At the first meeting, January 30, Drs. Baldwin L. Keyes and Edmund B. Spaeth discussed "Malingering" from the point of view of the psychiatrist and the ophthalmologist respectively. The committee plans to arrange monthly lectures.

ARMY RESERVE OFFICERS ORDERED TO ACTIVE DUTY

THIRD CORPS AREA

The following additional medical reserve corps officers had been ordered to extended active duty by the Commanding General, Third Corps Area, up to January 24. The Third Corps Area comprises the states of Pennsylvania, Virginia, District of Columbia and Maryland.

BOWERS, George Steel, 1st Lieut., Rustburg, Va., Fort George G. Meade, Md.
CHALFANT, Chads Owen, 1st Lieut., Donora, Pa., Fort Belvoir, Va.
ENGLEHART, Charles Edward, Captain, Edgewood, Pa., Fort Myer, Va.
FERKANY, Joseph Ernest, 1st Lieut., McKees Rocks, Pa., Fort McClellan, Ala.
JAVOIS, Alexander John, Captain, Pittsburgh, Camp Lee, Va.
JENNINGS, Edward Clifford, 1st Lieut., Washington, D. C., Indiantown Gap, Pa.
KEITHAN, John Frederick, 1st Lieut., Doylestown, Pa., Camp Lee, Va.

LEONE, Peter Pascal, 1st Lieut., Philadelphia, Camp Blanding, Fla.
MCGILL, John Francis, 1st Lieut., Pittsburgh, Camp Shelby, Miss.
McLANE, Charles Francis, Jr., 1st Lieut., South Williamsport, Pa., Camp Lee, Va.
McNELLIE, William Owen, 1st Lieut., Pittsburgh, Camp Blanding, Fla.
MESSER, William Allison, Captain, Pittsburgh, Fort George G. Meade, Md.
ORLEANS, Harry Byron, Captain, Washington, D. C., Fort Belvoir, Va.
PEACOCK, John Howell, Jr., 1st Lieut., Washington, D. C., Fort Belvoir, Va.
POHL, Charles Matthew, 1st Lieut., Manheim, Pa., Edgewood Arsenal, Md.
SMITH, John Prinz, 1st Lieut., Baltimore, Camp Lee, Va.
SOMMERS, Elmo Bauer, 1st Lieut., Norristown, Pa., Camp Blanding, Fla.
WHITLEY, Ayer Crouch, Captain, Palmyra, Va., Camp Shelby, Miss.
WOODWARD, Theodore Englar, 1st Lieut., Westminster, Md., Fort George G. Meade, Md.

FOURTH CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Fourth Corps Area, since January 17. The Fourth Corps Area comprises the states of Tennessee, North Carolina, South Carolina, Alabama, Georgia, Mississippi, Florida and Louisiana.

BATES, Thomas H., Major, Lake City, Fla., Fort Benning, Ga.
CAMP, Benjamin L., Captain, Ellijay, Ga., Fort Bragg, N. C.
CARTER, Harvey W., 1st Lieut., Murfreesboro, Tenn., Fort Sam Houston, Texas.
COLLUM, Tillman B., 1st Lieut., Golden, Miss., Fort Benning, Ga.
COUSAR, John B., 1st Lieut., Bishopville, S. C., Fort Jackson, S. C.
CULLIPHER, Edward W., Captain, Miami, Fla., Fort Benning, Ga.
DuBARD, Horton G., 1st Lieut., Knoxville, Tenn., Camp Peay, Tenn.
ELLIOTT, John L., Captain, Savannah, Ga., Fort Benning, Ga.
FARRER, Frederick E., 1st Lieut., Miami, Fla., Camp Wheeler, Ga.
FELDER, George D., Major, New Orleans, Fort Benning, Ga.
GORMAN, John M., Major, Jacksonville, Fla., Fort Benning, Ga.
JAMES, Samuel W., 1st Lieut., Ackernau, Miss., Fort Benning, Ga.
KENDRICK, Odis G., Major, Tallahassee, Fla., Fort Benning, Ga.
KENNEDY, David W., 1st Lieut., Vivian, La., Fort Bragg, N. C.
KINNARD, George P., Major, Newman, Ga., Fort Benning, Ga.
LEA, Joseph D., 1st Lieut., Baton Rouge, La., Camp Claiborne, La.

LIPSCOMB, James E., Jr., 1st Lieut., Greenville, S. C., Fort Bragg, N. C.
MANASCO, Hobson, 1st Lieut., Carbon Hill, Ala., Camp Croft, S. C.
McDANIEL, Thomas F., 1st Lieut., Sanford, Fla., Fort Benning, Ga.
McELHENY, Franklin, 1st Lieut., Miami, Fla., Fort Bragg, N. C.
MORIN, Henri G., 1st Lieut., St. Petersburg, Fla., Fort Benning, Ga.
NEUFFER, Frank H., 1st Lieut., Atlanta, Ga., Fort Benning, Ga.
PROVOST, Edwin K., 1st Lieut., Nashville, Tenn., Fort Benning, Ga.
QUANTZ, Herman C., 1st Lieut., Shreveport, La., Fort Benning, Ga.
RAINES, Hugh R., Major, Memphis, Tenn., Fort Benning, Ga.
ROSENBAUM, Maurice M., Captain, Shalotte, N. C., Fort Sam Houston, Texas.
SHERMAN, Kenneth G., Captain, Biloxi, Miss., Camp Davis, N. C.
SMITH, George C., 1st Lieut., Florence, S. C., Camp Peay, Tenn.
SNEED, Ralph, 1st Lieut., Jackson, Miss., Camp Davis, N. C.
TATUM, Walter L., Lieut. Col., Salisbury, N. C., Fort Benning, Ga.
WARD, Albert L., 1st Lieut., Fort St. Joe, Fla., Fort Benning, Ga.
WEINSTEIN, Howard I., 1st Lieut., Sumter, S. C., Fort Benning, Ga.
WILSON, Samuel A., 1st Lieut., Lincolnton, N. C., Camp Beauregard, La.

Relieved from Duty

The following officers, previously reported, have been relieved from duty or their orders have been revoked:

HIGHTOWER, Jesse R., 1st Lieut., Ita Bena, Miss.
NORMENT, Robert L., 1st Lieut., Lumberton, N. C.

SIXTH CORPS AREA

The following additional medical reserve officers had been ordered to extended active duty by the Commanding General, Sixth Corps Area, up to January 24. The Sixth Corps Area comprises the states of Wisconsin, Illinois and Michigan.

BAUER, Gerhard H., 1st Lieut., Ann Arbor, Mich., 5th Division, Fort Custer, Mich.
BOUYER, Harsba F., 1st Lieut., Chicago, 184th Field Artillery, Fort Custer, Mich.
BRISTOW, Jack H., 1st Lieut., Monroe, Wis., 5th Division, Fort Custer, Mich.
BROWN, King D., Captain, Chicago, 184th Field Artillery, Fort Custer, Mich.
BROWN, Marion G., 1st Lieut., Detroit, 38th Infantry, Fort Sam Houston, Texas.
BROWNS, Herschel L., 1st Lieut., Ann Arbor, Mich., Medical Supply Depot, Fort Sam Houston, Texas.
CALLAHAN, George B., Captain, Waukegan, Ill., 2d Medical Laboratory, Fort Sam Houston, Texas.
CAMPBELL, William J., 1st Lieut., Detroit, Medical Supply Depot, Fort Sam Houston, Texas.
COOK, James C., 1st Lieut., Detroit, Station Hospital, Fort Custer, Mich.
CROSS, Kenneth R., 1st Lieut., Detroit, 5th Division, Fort Custer, Mich.
CROUT, George T., Captain, Flanagan, Ill., 2d Medical Laboratory, Fort Sam Houston, Texas.
DEUTERMAN, Joel L., Captain, Elgin, Ill., Station Hospital, Camp Grant, Ill.
DOUD, Ernest A., 1st Lieut., Chicago, 5th Division, Fort Custer, Mich.
FINKLE, John R., Major, Plainfield, Ill., 77th Field Artillery, Fort D. A. Russell, Wyo.
GARLAND, John C., Captain, Mount Carroll, Ill., Medical Supply Depot, Fort Sam Houston, Texas.
GORDON, Orville E., 1st Lieut., Chicago, 5th Division, Fort Custer, Mich.
GUZZETTA, Marcus M., 1st Lieut., Milwaukee, Medical Supply Depot, Fort Sam Houston, Texas.
HESOG, Paul, 1st Lieut., Kenosha, Wis., 1st Medical Squadron, Fort Bliss, Texas.

HOERNESCHMEYER, Joseph L., Captain, Granite City, Ill., 2d Medical Laboratory, Fort Sam Houston, Texas.
HOUSTON, William H., 1st Lieut., Ann Arbor, Mich., 1st Medical Squadron, Fort Bliss, Texas.
IMMERMAN, Harold M., 1st Lieut., Saginaw, Mich., 2d Medical Battalion, Fort Sam Houston, Texas.
KAISER, Lloyd F., 1st Lieut., Rhinelander, Wis., Medical Supply Depot, Fort Sam Houston, Texas.
KEHL, Sylvester C., Major, Chicago, Medical Supply Depot, Fort Sam Houston, Texas.
KINGSBURY, Charles H., 1st Lieut., Goodman, Wis., 1st Medical Squadron, Fort Bliss, Texas.
KNAPP, Howard C., Captain, Belleville, Ill., 2d Medical Laboratory, Fort Sam Houston, Texas.
KNEWITZ, Ralph W., Captain, East St. Louis, Ill., 12th Cavalry, Fort Ringgold, Texas.
KNUTSON, Lewis A., 1st Lieut., Westby, Wis., 1st Medical Squadron, Fort Bliss, Texas.
KRETLOW, Fred A., 1st Lieut., Chicago, 1st Medical Squadron, Fort Bliss, Texas.
LEPAK, Alfred J., 1st Lieut., Chicago, 1st Medical Squadron, Fort Bliss, Texas.
LERNER, David, 1st Lieut., Chicago, 8th Engineers, Fort McIntosh, Texas.
LERNER, David, 1st Lieut., An Gres, Mich., 2d Medical Battalion, Fort Sam Houston, Texas.
LOCKLIN, Walter K., 1st Lieut., Ann Arbor, Mich., 2d Medical Battalion, Fort Sam Houston, Texas.
MacDONALD, Hugh, Captain, Skokie, Ill., 2d Medical Laboratory, Fort Sam Houston, Texas.
MATSON, Kenneth L., 1st Lieut., Chicago, 2d Medical Battalion, Fort Sam Houston, Texas.
MENAKER, Gerald J., 1st Lieut., Chicago, Hq. & Hq. Bn., 2d Div., Fort Sam Houston, Texas.
MITCHELL, Mancel T., 1st Lieut., Eau Claire, Wis., 38th Infantry, Fort Sam Houston, Texas.
PAISLEY, Alfred M., 1st Lieut., Jacksonville, Ill., 5th Division, Fort Custer, Mich.
PRUDOWSKY, Harry, 1st Lieut., Milwaukee, 5th Division, Fort Custer, Mich.

REGNIER, Walter O., Captain, Drummond, Wis., 12th Cavalry, Fort Ringgold, Texas.
RIGHTMAN, Bert, 1st Lieut., Chicago, 5th Division, Fort Custer, Mich.
SACHS, Mandel, 1st Lieut., Chicago, 2d Medical Battalion, Fort Sam Houston, Texas.
SALINSKY, Lester V., 1st Lieut., Sheboygan, Wis., 77th Field Artillery, Fort D. A. Russell, Wyo.
SANTORO, Antonio, Captain, Chicago, 7th Cavalry, Fort Bliss, Texas.
SCHWADE, Edward D., 1st Lieut., Shorewood, Wis., Station Hospital, Camp Grant, Ill.
SEIDMON, Edward E. P., 1st Lieut., Chicago, 2d Division Artillery, Fort Sam Houston, Texas.
SHAGAN, Robert M., 1st Lieut., Chicago, 5th Division, Fort Custer, Mich.
SHAPIRO, I. A., 1st Lieut., Detroit, 38th Infantry, Fort Sam Houston, Texas.
SHARP, Mahlon S., 1st Lieut., Detroit, 5th Division, Fort Custer, Mich.
SHULRUFF, Harry I., 1st Lieut., Chicago, Chicago Induction Board, Armory.

SMITH, James J., 1st Lieut., Chicago, 5th Division, Fort Custer, Mich.
SOROCK, Milton L., 1st Lieut., Detroit, 5th Division, Fort Custer, Mich.
STEIN, Albert F., 1st Lieut., Chicago, 5th Division, Fort Custer, Mich.
STERN, Louis S., Captain, West Allis, Wis., 7th Cavalry, Fort Bliss, Texas.
SULLENBERGER, Neil H., 1st Lieut., Detroit, 2d Medical Battalion, Fort Sam Houston, Texas.
TURNBULL, George C., Captain, Evanston, Ill., 82d Field Artillery, Fort Bliss, Texas.
WAGNER, David, Captain, Chicago, 77th Field Artillery, Fort D. A. Russell, Wyo.
WALLACE, John K., II, 1st Lieut., Marion, Ill., 5th Medical Battalion, Fort Custer, Mich.
WALSKE, Benedict R., 1st Lieut., Independence, Wis., Station Hospital, Camp Grant, Ill.
WEAVER, David F., 1st Lieut., Green Bay, Wis., 38th Infantry, Fort Sam Houston, Texas.
YELLEN, Harry J., 1st Lieut., Chicago, 77th Field Artillery, Fort D. A. Russell, Wyo.

SEVENTH CORPS AREA

The following additional medical reserve officers have been ordered to extended active duty by the Commanding General, Seventh Corps Area, up to January 11. The Seventh Corps Area comprises the states of North Dakota, South Dakota, Minnesota, Nebraska, Iowa, Kansas, Missouri, Arkansas and Wyoming.

ALLEN, Willi, n Edward, Jr., Captain, St. Louis, Fort Devens, Mass.
BARRY, Gerald Williams, 1st Lieut., Kansas City, Mo., Fort Ord, Presidio of Monterey, Calif.
BJORK, Floyd Joseph, 1st Lieut., Keota, Iowa, Fort Sam Houston, Texas.
BORGMEYER, Henry John, 1st Lieut., Dodge, Neb., Camp Joseph T. Robinson, Ark.
BRANCH, James W., 1st Lieut., Hope, Ark., Fort Knox, Ky.
BREWER, William McKelvey, 1st Lieut., Hays, Kan., Camp Murray, Wash.
BRILLHART, Everett Guy, 1st Lieut., Shelby, Neb., Camp Joseph T. Robinson, Ark.
BROBYN, Thomas Elmer, Captain, Grinnell, Iowa, Fort Ord, Presidio of Monterey, Calif.
BROTT, Clarence Raymond, 1st Lieut., Jansen, Neb., Fort Leonard Wood, Mo.
BROWN, Andrew Porter, 1st Lieut., Salina, Kan., Fort Riley, Kan.
CAMPBELL, James Holmes, 1st Lieut., Joiner, Kan., Fort Ord, Presidio of Monterey, Calif.
CHRISTIANSEN, Harold August, 1st Lieut., Jamestown, N. D., Fort Ord, Presidio of Monterey, Calif.
COLLINS, Leigh George, 1st Lieut., West Point, Neb., Fort Ord, Presidio of Monterey, Calif.
CRAWFORD, William Henry, Major, Omaha, Fort Ord, Presidio of Monterey, Calif.
CUSHING, Robert Louis, 1st Lieut., Fort Scott, Kan., Fort Ord, Presidio of Monterey, Calif.
DECKER, Charles Edward, 1st Lieut., Davenport, Iowa, Camp Murray, Wash.
DEUTCH, Max, Captain, St. Louis, Camp Murray, Wash.
DEYOUNG, George Marion, 1st Lieut., George, Iowa, Camp Murray, Wash.
DILLARD, James Robert, Major, Fargo, N. D., Fort Ord, Presidio of Monterey, Calif.
EATON, Wilbur Smith, 1st Lieut., Plattsmouth, Neb., Fort Crook, Neb.

EDWARDS, Thomas Franklin, Captain, Bismarck, N. D., Fort Ord, Presidio of Monterey, Calif.
ENTRINGER, Albert Joseph, 1st Lieut., Dubuque, Iowa, Camp Murray, Wash.
FELLMAN, Abe C., 1st Lieut., Omaha, Camp Murray, Wash.
GIFFORD, Byron Lee, 1st Lieut., Long Prairie, Minn., Camp Murray, Wash.
GRAUL, Elmer George, 1st Lieut., St. Louis, Camp Murray, Wash.
GRIMES, Henry Burton, Major, Madelia, Minn., Fort Ord, Presidio of Monterey, Calif.
HAMILTON, Benjamin C., Major, Jefferson, Iowa, Camp Murray, Wash.
HELPERY, John Kenneth, 1st Lieut., Tracy, Minn., Fort Ord, Calif.
JOHNSON, Charles Nelson, Major, Wichita, Kan., Fort Ord, Presidio of Monterey, Calif.
KAMISH, Robert James, 1st Lieut., Halstead, Kan., Fort Ord, Presidio of Monterey, Calif.
MCINTIRE, Landon Rolla, Captain, St. Charles, Mo., Fort Lewis, Wash.
MEYER, Jules Owens, 1st Lieut., Grand Rapids, Minn., Fort Ord, Presidio of Monterey, Calif.
OLSSON, Paul Bryant, 1st Lieut., Lexington, Neb., Fort Leavenworth, Kan.
RANSOM, Henry Robert, 1st Lieut., Grand Forks, N. D., Fort Lewis, Wash.
REED, Charles Clay, 1st Lieut., Little Rock, Ark., Jefferson Barracks, Mo.
RYDER, Frank Dell, Major, Grand Island, Neb., Fort Francis E. Warren, Wyo.
SAGI, Joseph Herman, 1st Lieut., Minneapolis, Fort Lewis, Wash.
SEASHORE, Rosel Theodore, 1st Lieut., Duluth, Minn., Fort Ord, Presidio of Monterey, Calif.
SHAW, William John, Major, Fayette, Mo., Camp Murray, Wash.
SMITH, Herman Joseph, 1st Lieut., Des Moines, Iowa, Fort Ord, Presidio of Monterey, Calif.
SNODGRASS, William A., Jr., 1st Lieut., Pine Bluff, Ark., Camp Joseph T. Robinson, Ark.
STEINBERG, Maurice M., 1st Lieut., Omaha, Fort Leavenworth, Kan.
STEWART, Donald Edward, 1st Lieut., Grand Rapids, Minn., Fort Lewis, Wash.
WATSON, Donald Paul, 1st Lieut., Grand Island, Neb., Fort Lewis, Wash.
WILLIAMS, Harold Otis, Captain, Cheney, Kan., Fort Lewis, Wash.
WYATT, Charles Arthur, Major, Holton, Kan., Fort Lewis, Wash.

REGULAR ARMY ORDERS

BOLLERUD, Jack, 1st Lieut., from Brooklyn, to Anchorage, Alaska.
FROITZHEIM, William J., Lieut. Col., from the Hawaiian Department to Fort Niagara, N. Y.
GLAUBMAN, William A., 1st Lieut., from Fort Benning, Ga., and LAWRY, Lee L., 1st Lieut., from Fort George G. Meade, Md., to the Puerto Rican Department.
HIESINGER, James D., Colonel, Fort Lewis, Wash., retired January 31 for age.

MAYFIELD, George C., Captain, from Hot Springs National Park, Ark., to Hawaiian Department.

WELLS, Francis P., Captain, from Holabird Q. M. Depot, Md., to Panama Canal Department, sailing from New York February 18.

WILLIAMSON, Carl S., Major, and MAUZERY, Armand J., 1st Lieut., from Fort Sheridan, Ill., to Puerto Rican Department.

THE 135th MEDICAL REGIMENT

The 135th Medical Regiment of the Wisconsin National Guard is now assigned as the Third U. S. Army Medical Regiment and is in camp at Camp Shelby, Miss. The following medical officers are on duty with the regiment:

BECKER, Reinhard, Major, Milwaukee.
BECKER, Walter T., Captain, Cedarburg, Wis.
BLECKWENN, William J., Colonel, Madison, Wis.
BOXER, Leo W., Captain, Milwaukee.
CHRISTIANSEN, Wilmer H., Captain, Milwaukee.
EAGLEBURGER, Leon S., Major, Waupun, Wis.
GALLOGLY, John A., 1st Lieut., Milwaukee.
HAUKOHL, Robert S., 1st Lieut., Milwaukee.

HIDDE, Frederick G., Captain, Sheboygan, Wis.
HOLMES, John F., 1st Lieut., Milwaukee.
KENDALL, Earl Thurman, Captain, Milwaukee.
LUDWIG, Erwin P., Captain, Wausau, Wis.
McMAHON, Raymond A., 1st Lieut., Madison, Wis.
MILLER, James E., Captain, Madison, Wis.
MUSSER, Marc J., Jr., Major, Madison, Wis.
PETERSON, John R., 1st Lieut., Milwaukee.
PETERSON, Leo W., Lieut. Colonel, Sun Prairie, Wis.
POHLE, Frederick J., Major, Madison, Wis.
SCHWARZE, Cyril A., 1st Lieut., Watertown, Wis.
THANOS, John N., 1st Lieut., Milwaukee.
VETTER, Edward W., Captain, Stevens Point, Wis.
WEISSMILLER, Lester L., Captain, Madison, Wis.
WILKINSON, Philip M., Captain, Oconomowoc, Wis.

ORGANIZATION SECTION

THE PHYSICIANS FEDERAL INCOME TAX—1941

PREPARED BY THE BUREAU OF LEGAL MEDICINE AND LEGISLATION

Every one who is required to make a federal income tax return must do so on or before March 15, unless an extension of time for filing his return has been granted. For cause shown, the collector of internal revenue for the district in which the taxpayer files his return may grant such an extension, on application filed with him by the taxpayer. This application must state fully the causes for the delay. Failure to make a return may subject the taxpayer to a penalty of 25 per cent of the amount of the tax due.

The normal rate of tax on residents of the United States and on all citizens of the United States regardless of their places of residence is 4 per cent on net income in excess of the exemptions and credits. The Revenue Act of 1940 imposes an additional tax, designated as a defense tax, which in general adds 10 per cent to the amount of tax a person otherwise would be required to pay.

Attention again is called to the provisions of the Public Salary Tax Act of 1939, which subjects to the federal income tax laws the income derived from personal services rendered as an officer or employee of a state, political subdivision, or any agency or instrumentality of either. Theretofore, such income had been considered nontaxable under the federal income tax laws if received for services rendered in carrying out a governmental function. Furthermore, the federal government, under that act, consented to the taxation of states by local taxing authorities of compensation received for personal service as an officer or employee of the United States, any territory or possession or political subdivision, the District of Columbia or any agency or instrumentality of any one or more of the foregoing, if such taxation does not discriminate against such officer or employee because of the source of such compensation. In effect, this act does away with the immunity from federal income taxes theretofore accorded employees of states, their political subdivisions, agencies or instrumentalities and the immunity from state and local taxes of the income received by federal officers or employees.

WHO MUST FILE RETURNS

1. Returns must be filed by every unmarried person and by every married person not living with spouse, if gross income during 1940 was \$800 or more.

2. Returns must be filed by every married person who lived with spouse, if gross income during 1940 was \$2,000 or over. If both husband and wife had income and their combined gross income was \$2,000 or over, they must either file separate returns or, if both are citizens or residents of the United States and if they were living together at the end of the taxable year, they may file a joint return. If a person was married and lived with spouse for only part of 1940, special rules apply with respect to the filing of returns, and physicians who come within this classification should read carefully the instructions given on the tax return blanks.

If the status of a taxpayer, so far as it affects the personal exemption or credit for dependents, changed during the year, the personal exemption and credit must

be apportioned, under rules and regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, in accordance with the number of months before and after such change. For the purpose of such apportionment a fractional part of a month should be disregarded unless it amounts to more than half a month, in which case it is to be considered as a month.

As a matter of courtesy only, blanks for returns are sent to taxpayers by the collectors of internal revenue, without request. Failure to receive a blank does not excuse any one from making a return; the taxpayer should obtain the necessary blank from the local collector of internal revenue.

The following discussion covers only matters relating specifically to physicians. Full information concerning questions of general interest may be obtained from the official return blank and from the collectors of internal revenue.

GROSS AND NET INCOMES: WHAT THEY ARE

Gross Income.—A physician's gross income is the total amount of money received by him during the year for professional services, regardless of the time when the services were rendered for which the money was paid, plus such money as he has received as profits from investments and speculation and as compensation and profits from other sources.

Net Income.—Certain professional expenses and the expenses of carrying on any enterprise in which the physician may be engaged for gain may be subtracted as "deductions" from the gross income, to determine the net income on which the tax is to be paid. An "exemption" is allowed, the amount depending on the taxpayer's marital status during the tax year as stated before. These matters are fully covered in the instructions on the tax return blanks.

Earned Income.—In computing the normal tax, but not the surtax, there may be subtracted from net income from all sources an amount equal to 10 per cent of the earned net income, except that the amount so subtracted shall in no case exceed 10 per cent of the net income from all sources. Earned income means professional fees, salaries and wages received as compensation for personal services, as distinguished from receipts from other sources.

The first \$3,000 of a physician's net income from all sources may be regarded under the law as earned net income, whether it was or was not in fact earned within the meaning set forth in the preceding paragraph. Net income in excess of \$3,000 may not be claimed as earned unless it in fact comes within that category. No physician may claim as earned net income any income in excess of \$14,000.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The taxpayer should make no claim for the deduction of expenses unless he is prepared to prove the expenditure by competent evidence. So far as practicable, accurate itemized records should be kept of expenses and substantiating

evidence should be carefully preserved. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in such dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," generally less than one year, may be deducted; but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of a more or less permanent nature. It may ultimately wear out, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using."

The cost of equipment, such as has been described, for professional use, cannot be deducted as expense in the year acquired. Examples of this class of property are automobiles, office furniture, medical, surgical and laboratory equipment of more or less permanent nature, and instruments and appliances constituting a part of the physician's professional outfit, to be used over a considerable period of time, generally over one year. Books of more or less permanent nature are regarded as equipment and the purchase price is therefore not deductible.

Although the cost of such equipment is not deductible in the year acquired, nevertheless it may be recovered through depreciation reductions taken year by year over its useful life, as described later.

No hard and fast rule can be laid down as to what part of the cost of equipment is deductible each year as depreciation. The amount depends to some extent on the nature of the property and on the extent and character of its use. The length of its useful life should be the primary consideration. The most that can be done is to suggest certain average or normal rates of depreciation for each of several classes of articles and to leave to the taxpayer the modification of the suggested rates as the circumstances of his particular case may dictate. As fair, normal or average rates of depreciation, the following have been suggested: automobiles, 25 per cent a year; ordinary medical libraries, x-ray equipment, physical therapy equipment, electrical sterilizers, surgical instruments and diagnostic apparatus, 10 per cent a year; office furniture, 5 per cent a year.

The principle governing the determination of all rates of depreciation is that the total amount claimed by the taxpayer as depreciation during the life of the article, plus the salvage value of the article at the end of its useful life, shall not be greater than its purchase price or, if purchased before March 1913, either its fair market value as of that date or its original cost, whichever may be greater. The physician must in good faith use his best judgment and claim only such allowance for depreciation as the facts justify. The estimate of useful life, on which the rate of depreciation is based, should be carefully considered in his individual case.

In a Treasury Decision, approved Feb. 28, 1934, No. 4422, it was held, among other things, that:

1. The cost to be recovered shall be charged off over the useful life of the property.

2. The reasonableness of any claim for depreciation shall be determined on the conditions known to exist at the end of the period for which the return was made.

3. Where the cost or other basis of the property has been recovered through depreciation or other allowances, no further deduction for depreciation shall be allowed.

4. The burden of proof will rest on the taxpayer to sustain the deduction claimed.

5. The deduction for depreciation in respect to any depreciable property for any taxable year shall be limited to such ratable amount as may reasonably be considered necessary to recover during the remaining life of the property the unrecovered cost or other basis.

Particular attention is called to the last of the foregoing provisions. If, in prior years, rates have been claimed which, if continued, will fully depreciate the cost, less salvage, before the end of its useful life, based on conditions now known, a reestimate of the remaining useful life should now be made and the portion of the cost that had not been depreciated at the beginning of the year 1940 (for a return for the year 1940) should be spread over this reestimated life.

Medical Dues.—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

Automobiles.—Payment for an automobile is a payment for permanent equipment and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeurs' wages, and the like.

Deductible loss through depreciation of an automobile is the actual diminution in value resulting from obsolescence and use and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is possessed by the present taxpayer.

psychotherapy, chromotherapy, zone-therapy, helio-therapy, corrective and orthopedic gymnastics, external applications, manipulation, nutritional control, psychology, biochemistry, hygiene, first aid, sanitation, dietetics, mechanical and electrical appliances, herbology, massage, anatomical correction; x-ray for diagnostic purposes only, irrigations of the body orifices; and that Naturopathy and Naturopathy shall be constructed as synonymous terms. And that also Sanipractic and Drugless Physicians shall be interpreted as the same as Naturopathy and its practice, and shall hereby be governed and regulated by this Act and Chapter. Provided, however, that nothing in this chapter shall be construed or held to authorize any Naturopathic Physician licensed hereunder to use narcotic drugs or practice surgery, or Chiropraxy." S. 240 and H. 334 propose to appropriate \$210,000 for each of the fiscal years 1941-42 and 1942-43 to organize, operate and maintain local full time health services throughout the state, these amounts to be used for the specific purpose of matching on a dollar for dollar basis federal funds that are available to the Tennessee Department of Public Health through provisions of the Federal Social Security Act and other federal appropriations for public health purposes. The bills also propose to appropriate for each fiscal year noted \$50,000 to be used to provide essential and additional public health services in areas where special financial or public health problems exist, for the establishment of approved local public health services where such services do not exist as of the date either of these bills is enacted and for any other emergency or necessary public health service for which financial provisions have not been made. H. 352 and S. 277 propose to appropriate for the coming fiscal year \$175,000 to be allocated at the rate of not less than \$2,500 per annum to each county and to each of the four major city governments maintaining an approved cooperative full-time public health service to be used for the specific purpose of matching on a dollar-for-dollar basis federal or other funds that are available to the Tennessee Department of Public Health through provisions of the Federal Social Security Act and other federal or other appropriations for public health purposes. For the fiscal year beginning July 1, 1942, the amount to be appropriated is to be \$190,000. The bill also proposes to appropriate an additional \$50,000 for the next two ensuing fiscal years to be used for the purpose of providing essential public health services in areas where special financial or public health problems exist, for the establishment of approved local public health services where such services do not exist and for any other emergency or essential public health service required for the protection of the public health. H. 351 and S. 278 propose to authorize the Division of Tuberculosis Control, in making provisions for the medical and surgical care of emergency and meritorious cases among economically dependent persons, to expend an amount not to exceed 10 per cent of the total funds available for hospitalization at a rate not to exceed \$2.50 per patient per diem without an equal matching requirement from counties or municipalities. H. 425 and S. 315, to amend the medical practice act, propose (1) to eliminate that provision in the present law that requires four members of the medical examining board to be nonsectarian physicians, one member to be a homeopath and one member to be an eclectic, and (2) to set the fee for the issuance of a license by reciprocity at \$50.

Utah

Bills Introduced.—S. 43, to amend the chiropraxy practice act, proposes that an applicant for a license to practice chiropraxy must either (1) have completed two years in a recognized college of liberal arts, and must be a graduate of a regularly established school of chiropraxy as recognized by the National Association of Chiropraxists, which requires as a prerequisite to graduation the completion of three chiropraxical-podiatric terms of at least three thousand, one hundred and twenty hours of class work given over a period of not less than three different calendar years; or (2) have completed one year in a recognized college of liberal arts or of the sciences and have graduated from a regularly established school of chiropraxy as recognized by the National Association of Chiropraxists, which requires as a prerequisite to graduation the completion of four chiropraxical-podiatric terms of at least four thousand, one hundred and sixty hours of class work given over a period of not less than four different calendar years. S. 12, to supplement the laws relating to the practice of the healing arts, proposes to authorize the issuance of the following additional classes of licenses to practice the healing arts: (1) "To practice as a naturopathic physician without the use of drugs and without operative surgery in accordance with the tenets of a professional school of naturopathy recognized by the department of registration" and (2) "To practice as a naturopathic physician and surgeon in accordance with the tenets of a professional school of naturopathy recognized by the department of registration, and having had class work equal to the standard of other practitioners of surgery." S. 13, to amend the law relating to the practice of dentistry, proposes to authorize the revocation or suspension of a licensee: (1) "Advertising his dental business or treatment or devices by untruthful, improbable or impossible statements, or advertising in any manner except by the use of newspapers, periodicals, signs, cards, radio and other lawful means of advertising, provided, that definite fixed prices or charges to be made be advertised in the manner and by the means hereinabove specified, and provided further that advertising in any manner or by any means whatsoever as in this act provided, shall be only in the name of the licensed dentist," and (2) "Failing to keep his price list of all dental operations of both minimum and maximum prices in a conspicuous place in his reception room, and at each dental chair in his dental office; The price list shall be in letters not smaller than one inch in size, and if the dentist employs a commercial dental laboratory to do his prosthetic work, price list of said laboratory shall be attached thereto." S. 59 proposes to transfer the enforcement of the uniform narcotic drug act and of the prophylactic act from the Department of Registration to the Board of Pharmacy. S. 67 proposes to enact a so-called occupational disease disability compensation act and to authorize the recovery of compensation by any employee who sustains from his employment one or more of the twenty-seven occupational diseases enumerated in the bill. S. 93, to amend the sales tax law, proposes to levy a tax of 2 per cent on the amount paid to any person for professional services rendered. S. 102 proposes to enact what it cites as the Food, Drug and Cosmetic Act to regulate the manufacture, sale, distribution or advertising of foods, drugs, cosmetics and therapeutic devices.

OFFICIAL NOTES

Hotels in Cleveland

On advertising page 46 of this issue of THE JOURNAL may be found a table containing a list of hotels in Cleveland and rates for rooms.

The form printed in the advertising pages may be clipped and, when it has been properly filled in, should be sent at once to Dr. Edward F. Kieger, Chairman, Subcommittee on Hotels of the Local Committee on Arrangements, Cleveland Convention and Visitors' Bureau, Incorporated, 1604 Terminal Tower, Cleveland, Ohio.

RADIO BROADCASTS

The next three programs to be broadcast in the series Doctors at Work are as follows:

- February 12. Medical Detective.
- February 19. One Man's Poison.
- February 26. Exploring Man's Mind.

The program is scheduled over the Blue network of the National Broadcasting Company Wednesdays at 10:30 p. m. eastern standard time (9:30 central, 8:30 mountain, 7:30 Pacific time).

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Personal.—Dr. Julius A. Katzive, assistant director of the Mount Sinai Hospital of New York for several years, has been appointed superintendent of the Mount Zion Hospital of San Francisco.

Hospital Conference.—Dr. Cyrus C. Sturgis, professor of internal medicine, University of Michigan Medical School, Ann Arbor, was the guest speaker of the San Jose Hospital Association at its conference January 6-10. Dr. Sturgis's subjects were the nature and treatment of hypertension, the hemorrhagic diseases, the menace and treatment of obesity, the macrocytic anemias and the anemias of pregnancy, and the therapeutic value of blood transfusions, preserved blood and blood substitutes.

Society News.—The Alameda County Medical Association was addressed January 20 by William H. Hollander, Oakland attorney, on "The Fifth Column Menace in America." Drs. Lloyd F. Hawkinson, Oakland, and Adelbert M. Moody, San Francisco, presented a symposium on basal metabolism. The Los Angeles Society of Neurology and Psychiatry was addressed, January 15, by Drs. Hans V. Briesen on "Neurosurgical Consideration of Spinal Canal Impingement by Hypertrophied Ligamenta Flava and Protruded Intervertebral Disks" and George Mosser Taylor, "Clinical Experience with the Sciatic Syndrome."

COLORADO

The Sewall Lectures.—Dr. Cyrus C. Sturgis, professor of internal medicine, University of Michigan Medical School, Ann Arbor, will deliver the Henry Sewall Memorial Lectures at the University of Colorado School of Medicine, Denver. His subject on February 11 will be "The Therapeutic Value of Blood and Blood Substitutes" and on February 13 "The Hemorrhagic Diseases."

CONNECTICUT

Waterbury Forms a Health Council.—A health council comprising representatives of medical, dental, civic and other agencies has been formed in Waterbury. The purpose of the council, which is an outgrowth of the Waterbury Citizens' Advisory Committee on Health, will be, among other things, to develop a cooperative program with all community public health agencies. The establishment of the council was urged in a recommendation following a public health survey made in 1939 by Ira V. Hiscock, C.P.H., and associates of the department of public health of Yale University School of Medicine, New Haven.

DISTRICT OF COLUMBIA

Society News.—The Washington Urological Society will be addressed by Dr. Stanford W. Mulholland, Philadelphia, February 19, on "Hypertension with Unilateral Renal Disease."

—The Medical Society of the District of Columbia will be addressed, February 26, by Drs. Arthur M. Grossman on "Practical Therapy with Vitamin K"; Norman H. Jolliffe, New York, "Newer Knowledge of the Vitamin B Complex," and H. Trendley Dean, D.D.S., "Some Recent Findings with Respect to Dental Caries."

New Health Center.—The new Southwest Health Center was opened for inspection by the District health department on December 18. The three story building, which cost \$200,000, contains a laboratory and maternal and child welfare, social, chest and dental clinics. Dr. Charles B. Campbell, Washington, chairman of the health committee of the Federation of Citizens' Associations, delivered the invocation. Dr. George C. Ruhland, Washington, District health officer, was presented with a certificate of merit by the Southwest Citizens' Association.

IDAHO

Hospital News.—The new Gritman Memorial Hospital was opened at Moscow recently at a cost of \$105,000. The three story building was financed by contributions from local citizens as a memorial to the late Dr. Charles L. Gritman. Two

floors have been added to the original wing of St. Joseph's Hospital, Lewiston. Lakeside Hospital, Coeur d'Alene, has recently increased its capacity from fifteen to thirty-five beds.

ILLINOIS

Personal.—Lieut. Marcus D. Burnstine, Columbus, Ohio, medical reserve officer, has been named physician in charge of the health service station for civilian employees at the Rock Island Arsenal, succeeding Dr. Roderick G. St. Pierre, Rock Island, who went to Portland, Ore.

Resident in Otolaryngology.—The position of junior resident in otolaryngology has become vacant at the Illinois Charitable Eye and Ear Infirmary. Applications should be addressed to Dr. Joseph C. Beck, assistant dean of instruction at the infirmary, 904 West Adams Street, Chicago.

Hospital News.—The Clara A. Abbott trust has given \$40,000 to the Evanston Hospital, supplementing an earlier donation of \$250,000. The money is being used for construction of the Abbott Memorial Building at the hospital, which will house clinical and research laboratories, an auditorium for medical teaching and facilities for outpatient diagnostic tests. Mrs. Abbott was the widow of Dr. Wallace C. Abbott, founder of the Abbott Laboratories.

CHICAGO

Annual Meeting of Heart Association.—Lieut. Col. Charles G. Hutter, Medical Corps, U. S. Army, liaison officer of the Office of the Surgeon General to the American Medical Association, will be the principal speaker and guest of honor at the annual session of the Chicago Heart Association in Abbott Hall February 12. Colonel Hutter's subject will be "Heart Disease and National Defense."

South Side Medical Assembly.—The midwinter meeting of the South Side Medical Assembly will be held on February 19 with clinics in the morning at various hospitals and afternoon and evening sessions at the Shoreland Hotel. Symposiums will make up the afternoon program, and after dinner Dr. James R. Bloss, Huntington, W. Va., will speak on "Sterility Studies in the Female." The assembly is an organization consisting of all the south side branches of the Chicago Medical Society.

Dr. Joseph Brennemann Retires.—After serving three years beyond the retirement age, Dr. Joseph Brennemann resigned, January 1, as chief of staff of the Children's Memorial Hospital, a position he had occupied since 1921. He has been succeeded by Dr. Charles Anderson Aldrich, a member of the staff for twenty years. Born in Peru, Ill., in 1872, Dr. Brennemann graduated at Northwestern University Medical School in 1900. He has been professor of pediatrics at the University of Chicago, the School of Medicine, since 1921.

INDIANA

Medical History.—Plans are under way to compile a history of medicine in Indiana. Members of the profession are urged to send in suggestions or any material they may have available to Miss Ruth McNutt, librarian, Indiana University School of Medicine, Medical Center, 1040 West Michigan Street, Indianapolis. Miss McNutt will file the material for later use by the Indiana Association for the History of Medicine.

Dr. Shanklin Honored.—Dr. Eldridge M. Shanklin, Hammond, for twenty-five years secretary of the Lake County Medical Society, was voted honorary membership in the society "for long and distinguished service" at a meeting, January 10. This is the first time in forty-three years that the society has conferred such an honor. Dr. Shanklin ended his twenty-fifth year as secretary of the society in 1938. He was president in 1920. He also served as president of the Indiana State Medical Association in 1925. Dr. Shanklin graduated at the Medical College of Indiana, Indianapolis, in 1902. Among other offices, he has been a member of the state board of registration in medicine, serving for three years as executive officer. He has been editor of the state medical journal for nine years. Formal presentation of the honorary membership will be made on February 13.

MICHIGAN

Personal.—Dr. Martha L. Longstreet was chosen as Saginaw's "outstanding citizen for 1940" recently when she was awarded an honorary life membership in the Saginaw Chamber of Commerce. Mr. George E. Phillips, superintendent of Herman Kiefer Hospital, Detroit, for twenty-six years, died

recently.—Dr. Lloyd F. Catron, assistant professor of pathology, University of Michigan Medical School, Ann Arbor, resigned, December 31, to become pathologist and director of laboratories in the Akron (Ohio) City Hospital. Dr. Catron graduated at Rush Medical College, Chicago, in 1932.

County Society Sponsors Public Exhibit.—The Kent County Medical Society opened a health exhibit in the Grand Rapids Public Museum, January 9. The exhibit will continue for six months, the themes to be changed from time to time, covering tuberculosis, pneumonia, cancer, infantile paralysis, allergy and diabetes. The auxiliary to the county medical society is planning a display of antique medical instruments, the city health department one on public health work, and the Kent County Dental Society one on dentistry. The Women's Field Army of the American Society for the Control of Cancer is cooperating in the exhibits on cancer. Grand Rapids Junior College is lending a series of charts on anatomy to be used in connection with the exhibits. Dr. William R. Vis, Grand Rapids, is chairman of the committee in charge of the exhibit.

Annual Clinic Day.—The Mount Carmel Mercy Hospital, Detroit, conducted its annual clinic day January 29. The following program was to be presented:

Dr. Grover C. Penberthy, Detroit, Surgical Treatment of Acute Osteomyelitis Combined with the Use of Sulfonamide Compounds.

Dr. Frederick A. Collier, Ann Arbor, The Closure and Healing of Wounds.

Dr. Charles H. Slocumb, Rochester, Minn., Differential Diagnosis and Treatment of the Arthritides.

Dr. Edgar H. Norris, Detroit, New Detroit Medical Center.

Dr. George Crile Jr., Cleveland, Hyperthyroidism.

Dr. Russell L. Haden, Cleveland, Treatment of Pernicious Anemia.

Dr. Morris Edward Davis, Chicago, Uses and Abuses of Cesarean Section.

At a dinner in the evening at the Hotel Statler, Dr. Edmund D. Margrave, Royal Oak, chief of staff of the hospital, was toastmaster. The speakers included Dr. Allan W. McDonald, Detroit, president, Wayne County Medical Society; the Hon. Murray D. Van Wagoner, governor of Michigan; the Hon. George Dondero, U. S. Congressman from Michigan, and the Hon. Martin Dies, U. S. Congressman from Texas.

MINNESOTA

Dr. Beadie Retires.—Dr. William D. Beadie, who has been active in tuberculosis work in Minnesota for almost twenty-five years, retired January 1 as superintendent of Mineral Springs Sanatorium, Cannon Falls, a position he had held for the past seventeen years. A graduate of McGill University Faculty of Medicine, Montreal, Dr. Beadie practiced medicine in southern Minnesota and in St. Paul, became medical director of Pokegama Sanatorium in 1917 and of Mineral Springs in 1923. Dr. Karl H. Pfuetze, formerly of Nopeming, has been named to succeed Dr. Beadie at Mineral Springs.

NEW JERSEY

New York University Courses in Newark.—New York University College of Medicine is presenting a course in amputations at the City Hospital, Newark, Saturday mornings from March 1 to April 12. Dr. Henry H. Kessler, Newark, will be director of the course, which will be given for not less than six nor more than eighteen physicians. Applications should be sent to the Office of the Dean, New York University College of Medicine, 477 First Avenue, New York, before February 22. A course of lectures on diseases of the liver and biliary tract will be given at the Newark City Hospital under the direction of Dr. Manfred Kraemer Tuesday and Thursday mornings from February 25 through March 27. Applications for this course must be received by February 18. The class will be limited to twelve.

Society Ex-Presidents Back Aid to Britain.—All the living ex-presidents of the Medical Society of New Jersey issued a joint statement, January 22, pledging their support to the President of the United States in behalf of total defense and in his effort to give all material aid to Great Britain short of war, irrespective of cost. The statement further called on the representatives from New Jersey in Congress to lend their support to a program to give the fullest aid to Great Britain and her allies. It was signed by Drs. Edward J. Ill, Wells P. Eagleton, Francis R. Haussling and Edward M. Zeh Hawkes, Newark; Walt P. Conaway and William J. Carrington, Atlantic City; Lucius F. Donohue, Bayonne; Andrew F. McBride, Paterson; George N. J. Sommer, Trenton; Frederick J. Quigley, Union City; Lancelot Ely, Somerville; Marcus W. Newcomb, Browns Mills; Spencer T. Snedecor, Hackensack, and William G. Herrman, Asbury Park.

NEW YORK

Lectures for Practitioners.—The council committee on public health and education of the Medical Society of the State of New York arranged a "Teaching Day" for the Wyoming County Medical Society in Castile, January 8. The speakers were Drs. Francis J. Gustina, Buffalo, on "The Use of Biologicals in the Diagnosis and Treatment of Communicable Diseases, with Discussion of Technics and Results" and Ward L. Ekas, Rochester, on "The Hemorrhagic States of Pregnancy, Placenta Praevia and Other Conditions." Three lectures on pediatrics are being presented before the Chemung County Medical Society in Elmira. Dr. Charles Hendee Smith, New York, gave the first, January 8, on "Pneumonias of Childhood"; Dr. Katharine G. Dodge, New York, will speak February 12 on "Rheumatic Fever, Chorea and Heart Disease," and Dr. Gaylord W. Graves, New York, March 12 on "Preventive Pediatrics and the Periodic Health Examination."

Aviation Award Presented to Dr. Bauer.—The first John Jeffries Award in aviation medicine was presented to Dr. Louis H. Bauer, Hempstead, L. I., by the Institute of the Aeronautical Sciences in New York, January 28. John Jeffries was a physician, born in Boston in 1744, who graduated from Harvard and later practiced in London. In 1784 he made a flight from London with Blanchard, a French balloonist, during which he recorded temperature, humidity, electrical charges and density of the air. The next year Jeffries and Blanchard made the first crossing of the English Channel by air. The institute will present the award annually for contributions to the advancement of aeronautics through medical research. Dr. Bauer graduated from Harvard Medical School, Boston, in 1912 and entered the Medical Corps, U. S. Army, in 1913. He was the first commandant of the School of Aviation Medicine of the Army Air Corps; also the first medical director of the aeronautics branch of the U. S. Department of Commerce, serving from 1926 to 1930, in which year he resigned from the army. He organized and was the first president of the Aero Medical Association and is editor of the *Journal of Aviation Medicine* and consultant in aviation medicine and cardiology to the Civil Aeronautics Authority. He is attending cardiologist to the Nassau Hospital, Mineola, and to the Meadowbrook Hospital, Hempstead.

New York City

Fifth Harvey Lecture.—Howard B. Lewis, Ph.D., professor of biological chemistry and chairman of the department, University of Michigan Medical School, Ann Arbor, will deliver the fifth Harvey Lecture of the current series at the New York Academy of Medicine, February 20, on "The Significance of the Sulfur-Containing Amino Acids in Metabolism."

Symposium on Wheezing.—The Tuberculosis Sanatorium Conference of Metropolitan New York will hold a clinical session on chronic pulmonary disease February 19 at which a symposium on "Clinical Aspects of Wheezing" will be presented. The speakers will be Drs. Robert A. Cooke, from the standpoint of the allergist; Mervin C. Myerson, the bronchoscopist, and Paul Klempner, the pathologist.

Symposium on Vitamins.—Long Island College of Medicine, Brooklyn, presented a symposium at an all day meeting January 23 with the following speakers discussing avitaminosis in relation to the subjects given: Drs. Thomas T. Mackie, medicine and surgery; Arthur W. Grace, dermatology; Benjamin Kramer, Brooklyn, pediatrics; H. Russell Meyers, Brooklyn, nervous diseases; Alfred C. Beck, Brooklyn, obstetrics, and C. Raymond Wells, D.D.S., Brooklyn, oral conditions.

The Physician in National Defense.—The metropolitan New York chapter of the Association of Military Surgeons of the United States held a symposium on "The Mission of the Physician in National Defense," January 23, at the New York Academy of Medicine. The speakers were:

Dr. Claude C. Pierce, The Medical Officer in the U. S. Public Health Service.

Col. Howard W. Barker, The Medical Officer in the Veterans Administration.

Capt. Edward C. White, The Medical Officer in the U. S. Navy.

Col. Charles M. Watson, The Medical Officer in the U. S. Army.

Dr. Charles F. W. Bove, The Civilian Physician and National Defense.

Dr. Van Etten Honored.—The Bronx Medical Association gave a dinner December 7 in honor of Dr. Nathan B. Van Etten, President of the American Medical Association, celebrating his fiftieth year in the practice of medicine. More than one hundred and fifty attended. The group, of which Dr. Van Etten is a charter member, presented to him a watch inscribed "To Dr. Nathan B. Van Etten, President of the

American Medical Association, 1940; for fifty years zealous exponent of medical ideals and ethics, with high regard, from the Bronx Medical Association."

Lilly Award to Dr. Woolley.—Dilworth Wayne Woolley, Ph.D., fellow on the staff of the Rockefeller Institute for Medical Research, won the \$1,000 Lilly award and a bronze medal given at the annual convention of the Society of American Bacteriologists in St. Louis in December. The award, established by Eli Lilly and Company, is presented annually to a man or woman under 31 years of age who has made exceptional contributions to knowledge of bacteriology or immunology in a noncommercial or educational institution. Dr. Woolley was honored for his research on the hemolytic streptococcus. He graduated from the University of Alberta in 1935.

PENNSYLVANIA

Society News.—Dr. Thomas St. Clair, Latrobe, among others, addressed the Westmoreland County Medical Society, Greensburg, January 21, on "Analgesia in Obstetrics."—Dr. Jacques P. Guequierre, Philadelphia, addressed the Northampton County Medical Society, January 17, on "The General Practitioner and Everyday Dermatoses."—Dr. Frank H. Lahey, Boston, President-Elect of the American Medical Association, addressed the Lackawanna County Medical Society, Scranton, January 30, on "Surgery of the Stomach and Small Intestine."

Philadelphia

Program on Aviation Medicine.—The Philadelphia Laryngological Society had a program devoted to aviation medicine, February 4. The speakers were Comdr. John C. Adams, U. S. Navy, on "Aviation Medicine Today"; Comdr. John R. Poppen, U. S. Navy, "Otolaryngology and Physical Stresses in Modern Aviation"; Comdr. Travis S. Moring, U. S. Navy, "Aviation Ophthalmology"; Drs. Robert J. Hunter, "Experiences as a Flight Surgeon"; Alfred N. Richards, vice president for medical affairs, University of Pennsylvania, "General Considerations of Aviation Medicine," and Carl F. Schmidt, professor of pharmacology, University of Pennsylvania School of Medicine, "Recent Advances in Physiology Pertaining to Aviation Medicine."

VIRGINIA

Graduate Course in Specialties.—The seventh annual postgraduate course in ophthalmology and otolaryngology was held at the University of Virginia Department of Medicine, Charlottesville, December 10-13. The lecturers included Drs. Marvin F. Jones, New York; James Milton Robb, Detroit; Harry S. Gradle, Chicago; Frank B. Walsh, Baltimore, and Comdr. John R. Poppen, Bureau of Aeronautics, U. S. Navy.

Personal.—Dr. Bathurst B. Bagby, West Point, former director of the bureau of child health in the state health department, has been appointed city epidemiologist and chief health officer of Richmond on a temporary basis. Dr. William A. Browne resigned as epidemiologist and acting health officer to become health officer of Alexandria. The position of health officer had not been filled since the advent of a new city administration. Dr. Bagby retired from the state service in July 1940.—Dr. George A. Welchons, assistant director of Pine Camp Hospital, Brook Hill, city tuberculosis hospital for Richmond, has been appointed superintendent and medical director to succeed Dr. Percy E. Schools, resigned.

WASHINGTON

Surgical Meeting.—Dr. Allen O. Whipple, New York, was the guest speaker at the annual meeting of the Seattle Surgical Society at the King County Hospital, Seattle, January 31 and February 1. Dr. Whipple discussed the papers presented by local surgeons each morning and afternoon and made addresses at two dinner meetings on "Surgery of the Pancreas" and "Results of Decompression with Intestinal Intubation in Surgery of the Intestinal Tract."

Society News.—Drs. Rudolph G. Andres and George H. Anderson addressed the Spokane County Medical Society, Spokane, January 9, on "Intestinal Obstruction" and "Hyperventilation Syndrome" respectively.—Dr. Caspar W. Sharples, Seattle, addressed the Grays Harbor County Medical Society at its December meeting on "Differential Diagnosis of Abdominal Conditions."—Karl F. Meyer, Ph.D., San Francisco, addressed the Walla Walla Valley Medical Society, Walla Walla, January 16, on "Virus Diseases."—Dr. Frederick A. Slyfield, Seattle, addressed the Pierce County Medical Society, Tacoma, January 14, on "Diseases of the Chest."

GENERAL

Congress on Dental Education.—The Council on Dental Education of the American Dental Association will hold a Congress on Dental Education and Licensure at the Stevens Hotel, Chicago, February 15. The speakers will include:

Dr. Ray Lyman Wilbur, Stanford University, Calif., chairman of the Council on Medical Education and Hospitals of the American Medical Association, Professional Education and Licensure.
Dr. Charles Sidney Burwell, dean, Harvard Medical School, Boston, The Harvard Plan of Dental Education.
John T. O'Rourke, D.D.S., dean, University of Louisville School of Dentistry, The Aims of Dental Education.
Harold W. Alden, D.D.S., Northampton, Mass., chairman, National Board of Dental Examiners, The Functions and Methods of the National Board of Dental Examiners.
Morton H. Jones, D.D.S., secretary, Ohio State Dental Board, Columbus, The Aims of Licensure in Dentistry.
Edward S. Jones, Ph.D., professor of psychology, University of Buffalo, The Philosophy and Procedure of the Examining Process.
J. Ben Robinson, D.D.S., dean, Baltimore College of Dental Surgery of the University of Maryland, Functions of the Council on Dental Education.

Mid-South Post Graduate Assembly.—The fifty-sixth annual session of the Mid-South Post Graduate Assembly will be held in Memphis, Tenn., February 11-14 at the Hotel Peabody. The guest speakers will include:

Major Gen. James C. Magee, Washington, D. C., Medical Preparation for the Present Emergency.
Dr. Henry P. Wagener, Rochester, Minn., Diagnostic and Prognostic Significance of Retinal Glomerulonephritis.
Dr. Eldridge L. Eliason, Philadelphia, Surgical Aspects of Gastrointestinal Hemorrhage.
Dr. William D. Stroud, Philadelphia, Digitalis, Its Indications and Best Method of Administration.
Dr. Elmer L. Sevringhaus, Madison, Wis., Obesity, Types and Treatment.
Dr. Bret Ratner, New York, The Asthmatic Child.
Dr. Dallas B. Phemister, Chicago, Conservative Surgery in the Treatment of Sarcoma.
Dr. Marion A. Blankenhorn, Cincinnati, Nutritional Disorders of the Nervous System.
Dr. Leon Herman, Philadelphia, The Physiological and Clinical Significance of Renal Symptoms.
Dr. Verne C. Hunt, Los Angeles, Surgical Considerations of Obstructive Jaundice.

Dr. James L. Dunavant, Ripley, Tenn., is president of the assembly and Dr. Clyde M. Speck, New Albany, Miss., is president-elect.

Conference on Medical Service.—The fifteenth annual meeting of the National Conference on Medical Service, formerly the Northwest Regional Conference, will be held in the Red Lacquer Room, Palmer House, Chicago, Sunday, February 16. Dr. Forrest L. Loveland, Topeka, is president, and Dr. Harold M. Camp, Monmouth, Ill., secretary. The first session will be devoted to discussion of voluntary group medical programs with the following speakers: Mr. J. D. Laux, executive director, Michigan Medical Service, Detroit; Dr. William M. Hartman, Macomb, and Mr. J. George Crownhart, Madison, Wis. Medical preparedness will be discussed by Drs. Irvin Abell, Louisville; Morris Fishbein, Chicago, Editor of THE JOURNAL; Leonard G. Rowntree, chief, medical division, selective service system, Washington, D. C., and Olin West, Chicago, Secretary and General Manager of the American Medical Association. State medical societies' postgraduate programs will be discussed by Drs. Howard E. Snyder, Winfield, Kan., William A. O'Brien, Minneapolis, and Robert S. Berghoff, Chicago. Federal and state legislative problems will be presented, respectively, by Dr. Edward H. Cary, Dallas, and Mr. J. W. Holloway Jr., Chicago. Medical care for social security clients will be considered by Mr. Walter F. Fink, director, Minnesota Division of Social Welfare, department of social security, St. Paul; Dr. Alfred W. Adson, Rochester, Minn.; Mr. Walter G. Stumbo, Topeka, Kan., and Dr. Charles H. Phifer, Chicago. Mr. C. H. Wantz, president, Medical Exhibitors Association, Chicago, will discuss "The Annual Meetings from the Standpoint of the Exhibitor."

CORRECTION

"Vitamin Sweets."—In the editorial on this subject which appeared in THE JOURNAL for January 18, a footnote stated that the vitamin A concentrate used was probably that of the Eastman Kodak Company. We are informed that the Distillation Products, Inc., of Rochester, N. Y., took over the patents and work on this subject from the Eastman Kodak Company in June 1939. This company sells vitamin A concentrate in bulk to food and drug manufacturers. None is sold retail. The company states that it has supplied limited quantities of these concentrates to Dr. Newton, but the company has made no recommendation nor has it been active in any way in promoting "Vitamin Sweets."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 14, 1940.

Temporary Registration for United States and Canadian Physicians

A defense regulation has been passed which enables physicians legally entitled to practice in any territory outside the United Kingdom to which the regulation is applied to be temporarily registered in the Colonial or Foreign Section of the Medical Register for a period not longer than that of the present emergency, if it is shown to the satisfaction of the General Council of Medical Education and Registration that the physicians fulfil the prescribed conditions. An order has been made by the council applying the regulation to each of the provinces of Canada and to the United States. The order prescribes as conditions of temporary registration that applicants shall be (1) British subjects or citizens of the United States, (2) shall be of good character and (3) shall hold a medical diploma granted in a province of Canada or in the United States which is recognized for the time being by the council for the purposes of the order as furnishing sufficient guaranty of the possession of the requisite professional knowledge and skill. The way is thus opened to our colleagues in Canada and the United States who wish to give practical expression to their belief that our cause is their cause by placing their services at the disposal of the British government as long as the emergency lasts.

End of Medical Reciprocity with Italy

At the same time as the Council announced this order it put an end to the order made forty years ago establishing medical reciprocity with Italy. The president stated that for the greater part of this long period Italy had taken privileges far more extensive than any that she gave. The right of persons already entered on the foreign list of the Medical Register by virtue of diplomas granted in Italy is not prejudiced by the new position.

War Economy in Dermatologic Prescribing

In a previous letter the disuse of drugs which have to be imported and the substitution for them of equivalents produced at home, in order to conserve cargo space for war purposes, was described. The special field of dermatologic prescribing has been dealt with by the Therapeutics Requirements Committee of the Medical Research Council in a memorandum of suggestions. It is pointed out that, for many of the purposes for which ointments are prescribed, pastes and creams are more satisfactory and they require only about half the amount of fatty basis. Fatty vehicles can sometimes be replaced by wet dressings (with or without mucilage), antiseptic paints and varnishes or powders. With regard to antiseptics, boric acid and iodine need not be used in dermatology. The amount of mercury used can be greatly reduced by limiting it to cases in which other antiseptics have not proved satisfactory. If the antiseptics were limited to aniline dyes, coal tar derivatives, salicylic acid, sulfur, ichthammol, resorcinol, dioxanthranol, silver nitrate and tar, the treatment of most cutaneous diseases would not suffer much. For the treatment of ringworm, mercurials and iodine are rarely required, whereas a paste containing fuchsin and Whitfield's ointment of benzoic and salicylic acid are effective and freely available. If epidemics of scabies should occur, treatment will be most economical by dermatologists. Sulfur ointment still remains one of the most efficacious remedies. If benzyl benzoate is scarce, it had best be reserved for the treatment of children.

For the treatment of pediculosis of the body or scalp, oily dressings are not essential, though of some value in pediculosis pubis.

The committee has divided dermatologic drugs into the same groups as in the previous memorandum: 1. Those readily available or essential—acriflavine, aniline dyes, benzoic acid, calamine, chloroform, coal tar, ether, hydrochloric acid, hydrogen peroxide, ichthammol, kaolin, saponated solution of cresol, phenol, resorcinol, salicylic acid, silver nitrate, sodium bicarbonate, sulfur, tannic acid, wool fat and zinc. 2. Drugs essential for certain purposes, to which they should be restricted. In the following list substitutes are given in parentheses: aluminum acetate (lead acetate), boric fomentations (saline compresses), chrysarobin (dioxanthranol), iodine (proflavine, acriflavine, trinitrophenol, crystal violet or brilliant green), magnesium sulfate (sodium sulfate). 3. Drugs whose efficacy does not justify importation or manufacture in wartime—almond oil and sulfurated potash. For the latter, sulfur ointment or sulfurated lime could be substituted.

American Red Cross Aids British Children

By far the largest help from America to Britain, apart from military supplies, has been in the form of gifts from the American Red Cross, which amount to \$12,500,000. Besides cash contributions the American Red Cross, which is organized in three thousand, seven hundred chapters covering the forty-eight states, has "Aid-to-Britain" groups making clothing of all kinds to help our war effort. Already thirty-five large country houses have been taken over as nursery homes for bombed London children. The cost of their maintenance is being borne by the junior branch of the American Red Cross—that is, by the children of America, who will also provide thirty thousand Christmas boxes for children bombed out of their houses and living in the shelters of London and other cities. Mr. Daniel Grant, chairman of the American Red Cross Committee in Great Britain, has declared that "the American people, through the American Red Cross, have made a great effort to help the people of Britain. It is an effort second only in importance to the supplies of munitions and aircraft reaching here from America."

The American Red Cross distributes its supplies through the British Red Cross and the Women's Voluntary Services. Some idea of the amount of help given is shown by a recent inventory of Mr. Grant, which reveals the promise of one hundred and thirty-six fully equipped mobile canteens, twenty of which are already in operation, twelve of which are working in London and take food every night to auxiliary fire service men, air raid wardens, police and first line shelters. Other gifts include one hundred and twenty thousand pairs of boots and shoes and a million garments for air raid victims. A quarter of a million yards of material has been purchased in Great Britain for the Women's Voluntary Service, who will work it up into garments. The British Red Cross has also received one hundred and ten ambulances and is promised another three hundred in the near future, ten complete roentgen ray units, thirteen fully equipped operating tables, large quantities of blood plasma given by people in America, all kinds of medical supplies, hospital equipment and clothing.

Leiden University in the Netherlands Is Closed

News has been received in London of the closure by the Germans of the famous university of Leiden. The reason given is that the students have been "obstructive," which in ordinary language means that the pursuit of truth in accordance with the tradition upheld by Leiden for more than three and one-half centuries is inconsistent with nazi doctrines. It may be recalled that Boerhaave, one of the fathers of modern medicine, taught at Leiden and attracted vast audiences from all over Europe. Edinburgh's great medical school can be

traced to Boerhaave's lecture room. In Leiden's early days Scaliger added to its glory and in the present day Einstein has done so. The physicist Lorentz was proud of his Leiden professorship, and there at the beginning of this century Omnes carried out his famous experiments on gases at extremely low temperatures, culminating in his liquefaction of helium. Truly Europe is witnessing an eclipse of her higher civilization.

Masks in the Prevention of Infection

A committee of the House of Commons has recommended the wearing of a simple form of mask in air raid shelters during epidemics, with the object of preventing infection. During the fatal epidemic of influenza which followed the last great war, masks were worn in some hospitals by all who entered the wards. Though the infection was most virulent, physicians, nurses and attendants escaped with few exceptions. The masks consisted only of a pad of white gauze secured by tapes. As the season of influenza epidemics is near, it has been suggested that the dislocation of industry caused every year by this disease could be reduced to a minimum and the millions of working hours—so important just now—could be saved if masks were introduced into factories and workshops as well as into air raid shelters.

The Prevention of Diphtheria

In reply to a question in the House of Commons by Prof. A. V. Hill (the physiologist), the minister of health stated that the annual number of cases of diphtheria in England and Wales is about 60,000, of which 54,000 occur in children under the age of 15. The average number of children under 15 who die from diphtheria is 2,700. The average number of hospital beds occupied by diphtheria patients is five thousand, and the annual cost of the hospital treatment is \$5,000,000. The minister stated that experience in Canada and the United States showed that the disease can be almost entirely eliminated by the immunization of children. In view of the fact that children are now being freely moved from one area to another (in the evacuation due to air raids), Professor Hill asked whether the necessary agents for preventive inoculation might not now be provided as a national charge instead of one on the local authorities. Also in view of concern as to the spread of infection in crowded air raid shelters would the Ministry of Health take more active steps to protect the child population against diphtheria. The minister replied that his policy was to encourage local authorities to provide facilities for immunization and to do their best to persuade parents to take advantage of them. The cost of the necessary material in the present war conditions would be reimbursed to the local authorities by the government.

Sir Henry Dale President of the Royal Society

The highest scientific honor in this country, the presidency of the Royal Society, has been conferred on Sir Henry Dale in succession to Sir William Bragg. Since 1663 there have been forty-four presidents of the Royal Society, and Dale is the eighth member of the medical profession to hold the office. He has never engaged in practice as a physician but has devoted himself to research. His medical education took place at St. Bartholomew's Hospital and University College. From 1904 to 1914 he was director of the Wellcome Physiological Research Laboratories. He then was appointed head of the department of biochemistry and pharmacology of the Medical Research Council. In 1928 he was made director of the National Institute of Medical Research, which he still is.

His first step in the researches which have made him famous was his investigation of the action of acetylcholine in 1914, but not till 1929 was he able, in collaboration with Dudley, to isolate it from an animal organ in quantities sufficient to be identified chemically. Observations on the frog's heart by Loewi and further researches by Dale, with other collabora-

tors, led to the knowledge that acetylcholine is the substance liberated at parasympathetic endings and the endings of preganglionic fibers in autonomic ganglions. It was later shown that it is liberated also at the endings of voluntary motor nerves. Dale introduced the terms "cholinergic" and "adrenergic" to describe action of the nerve fibers of the autonomic system in terms of chemical function. Another research of fundamental importance, in collaboration with Berger and Laidlaw, was on the active principles of ergot, which led to the identification of the alkaloid ergonovine. From his work on ergot developed his researches on the action of histamine and its analogy with surgical shock, which were carried out during the last war. His training and direction of workers in the field of biochemistry have been of far reaching importance. In 1919 he delivered the Herter lecture at the Johns Hopkins University. In 1936 he shared the Nobel prize for medicine.

Marriages

ALBERT JOSEPH ORLOSKY, Arlington, Va., to Miss Nancy Elise Conley of Washington, D. C., in October 1940.

GEORGE RUDOLPH LAUB, New Bern, N. C., to Miss Harriet Elizabeth Stith of Columbia, S. C., in October 1940.

PAUL L. SINGER, Des Moines, Iowa, to Miss Shirley E. Ellis of Hillsdale, Mich., in Chicago, Oct. 26, 1940.

HOMER JACKSON HANCOCK, Welch, W. Va., to Miss Harriet Loyd Hudgins of Warrenton, N. C., Oct. 26, 1940.

KENDALL O. KENNEDY, Columbus, Ohio, to Miss Laura K. Campbell in Paw Paw, Mich., in October 1940.

FRANK MATTHEWS PARISH, Brunswick, Ga., to Miss Martha Elizabeth Mobley of Atlanta in October 1940.

WILLIAM EDWARD ADAIR JR. to Miss Lucy Blake Ward, both of Wilmington, N. C., in October 1940.

JAMES MONTELEONE CIARAVELLA, New Orleans, to Miss Frances Anzalone at Independence recently.

DANIEL SMITH CURRIE JR., Parkton, N. C., to Miss Marion Cox Wood near Vanceboro, Oct. 26, 1940.

ANDREW M. JAMISON JR., Spartanburg, S. C., to Miss Evelyn Byrd Hardin in Cincinnati, Oct. 27, 1940.

WILLIAM LOVELL WRIGHT, West Liberty, Ky., to Miss Eva Sara Murphy of Lexington, Oct. 12, 1940.

DUDLEY Y. OLDHAM, Houston, Texas, to Miss Cornelia Cobb of Longville, La., Oct. 20, 1940.

HOYT R. ALLEN to Mrs. Martha Branham, both of Little Rock, Ark., at Benton, Oct. 19, 1940.

GENE L. TEPLY to Miss Agnes Josephine Eustcrbrock, both of Howells, Neb., Oct. 26, 1940.

JOHN M. COOK, Pittsburgh, to Miss Velma Elizabeth Bowser of Beaver Falls, Pa., in October 1940.

BASSEL NELSON BLANTON, Temple, Texas, to Miss Frances Carol Crain of Waco, Oct. 30, 1940.

ARTHUR PARK MCGINTY, Atlanta, Ga., to Miss Murray Smith of Birmingham, Ala., recently.

PAUL E. DINGLE, New Castle, Ind., to Miss Marian Atchison of East Palestine, Ohio, recently.

LELAND B. GOULD, Coquille, Ore., to Miss Mabel E. Henderson of Portland in October 1940.

JOHN GRAHAM NORRIS, Farmerville, La., to Miss Mary Incz Taylor in Monroe in October 1940.

ALAN STANFORD HORWITZ, New York, to Miss Charlotte Vangrov of Dayton, Ohio, recently.

JOHN E. ALLGOOD JR. to Miss Virginia Marie Schiller, both of Petersburg, Ohio, Oct. 21, 1940.

CHARLES CRAIG GASS, Kearney, Neb., to Miss Doris Edna Griffiths of Omaha, Oct. 19, 1940.

CLARENCE F. KELLY JR., Duquoin, Ill., to Miss Lillian Masters of Butler in October 1940.

WILLIAM MCCONNELL JONES, Gastonia, N. C., to Miss Elizabeth Garlington, Oct. 14, 1940.

LEWIS HOWARD McDONALD to Miss Lois Reeves, both of Atlanta, Ga., Oct. 12, 1940.

Deaths

Carl Roger Darnall ♂ Brigadier General, United States Army, retired, Washington, D. C., died, January 18, in the Walter Reed General Hospital of arteriosclerosis, aged 73. General Darnall was born Dec. 25, 1867 in Weston, Texas; he graduated from the Jefferson Medical College of Philadelphia in 1890 and the Army Medical School in 1897. He entered the military service Oct. 27, 1896 and was appointed captain and assistant surgeon Oct. 26, 1901, major April 23, 1908, lieutenant colonel July 1, 1916 and colonel May 15, 1917. His first service was with the 23d infantry at Fort Clark, Texas. In 1900 he was on duty at the United States Military Hospital in Havana, Cuba. From May 1900 to April 1901 he served as operating surgeon and pathologist on the hospital ship *Relief*. He commanded the Military Hospital at Iloilo, Philippine Islands, 1901-1902; in June 1902 he returned to the United States and was on duty in the Office of the Surgeon General, Washington, D. C. From June 1903 until 1913 he was on duty at the Army Medical School, serving as adjutant and secretary of the faculty, instructor in sanitary chemistry and operative surgery. During that period he was in charge of the medical supply depot, Washington, D. C., a member of the army examining board and of the joint board of army and navy medical officers. Brigadier General Darnall served in the Philippine Islands from April 1914 until July 1916 at the Department Hospital in Manila and at the Medical Supply Depot. Returning to the United States in August 1916, he again served in the Office of the Surgeon General as executive officer. In December 1922 he was transferred to Hawaii, where he served as department surgeon. In August 1925 he was ordered to duty in the Office of the Surgeon General, where he served as executive officer until 1929, when he was appointed assistant surgeon general with rank of brigadier general, commanding the Army Medical Center. Brigadier General Darnall was awarded the Distinguished Service Medal. He retired Dec. 31, 1931 by operation of law. He was a fellow of the American College of Surgeons. In 1910 he originated the liquid chlorination of water for the safeguarding of water supplies.

Paul Ferdinand Schilder ♂ New York; Medizinische Fakultät der Universität Wien, Austria, 1909; research professor of psychiatry at the New York University College of Medicine; member of the American Neurological Association, American Psychiatric Association and the American Psychopathological Association; clinical director of the psychiatric division of Bellevue Hospital; served in the Austrian Army during the World War; author of "Introduction to a Psycho-analytic Psychiatry" and several books published in Berlin and Vienna; aged 54; died, Dec. 8, 1940, in the Misericordia Hospital of injuries received when he was struck by an automobile.

Louis Casper Duncan ♂ Colonel, United States Army, retired, St. Petersburg, Fla.; Kansas Medical College, Topeka, 1896; demonstrator and assistant professor of anatomy at his alma mater from 1896 to 1898; veteran of the Spanish-American War; entered the medical corps of the Army as a first lieutenant on Oct. 27, 1902 and graduated the following year from the Army Medical School; reached the grade of lieutenant colonel on May 15, 1917 and was retired on March 2, 1920; during the World War was given the temporary grade of colonel and was advanced to that grade on the retired list on June 21, 1930; aged 71; died, Oct. 19, 1940, of bronchopneumonia.

William S. Smith, Baltimore; University of Maryland School of Medicine, Baltimore, 1883; clinical professor of gynecology at his alma mater, now the University of Maryland School of Medicine and College of Physicians and Surgeons; professor of gynecology at the Maryland Medical College from 1898 to 1913; surgeon, city police department from 1888 to 1898; examiner, state board of labor and statistics from 1916 to 1919; aged 80; for many years consultant in gynecology at the E. C. Hazard Hospital, Long Branch, N. J., and on the staff of the Franklin Square Hospital, where he died, Dec. 9, 1940, of uremia due to carcinoma of the prostate.

Clelia Duel Mosher, Stanford University, Calif.; Johns Hopkins University School of Medicine, Baltimore, 1900; assistant professor of personal hygiene, Stanford University, from 1910 to 1922, associate professor from 1922 to 1928, professor, 1928-1929 and professor emeritus since 1929, and medical adviser of women from 1910 to 1929; medical investigator, children's bureau, and assistant medical adviser and later associate medical director, Bureau of Refugees and Relief, American Red Cross in France, from 1917 to 1919; aged 77; died, Dec. 22, 1940.

Karl Sigismund Blackwell ♂ Richmond, Va.; University College of Medicine, Richmond, 1906; professor of otolaryngology, Medical College of Virginia; fellow of the American College of Surgeons; past president and vice president of the Virginia Society of Ophthalmology and Otolaryngology; formerly vice president of the Medical Society of Virginia; past president of the Richmond Academy of Medicine; on the staff of the Hospital Division of the Medical College of Virginia; aged 61; died, Dec. 26, 1940, of coronary thrombosis.

Robert Pelton Wadhams ♂ New York; University and Bellevue Hospital Medical College, New York, 1906; professor of clinical surgery at his alma mater, now known as the New York University College of Medicine; fellow of the American College of Surgeons; served during the World War; attending surgeon, Bellevue Hospital; associate attending surgeon, French Hospital; consulting surgeon, Charlotte Hungerford Memorial Hospital, Torrington, Conn.; aged 61; died, Dec. 16, 1940, of heart disease.

de Wayne Greenwood Richey ♂ Pittsburgh; University of Pittsburgh School of Medicine, 1915; assistant professor of laryngology and rhinology at his alma mater; member of the American Association of Pathologists and Bacteriologists; fellow of the American College of Surgeons; served during the World War; aged 48; on the staffs of the Mercy Hospital, Pittsburgh, and the Columbia Hospital, Wilkensburg, Pa., where he died, Dec. 5, 1940, of portal cirrhosis of the liver.

John Templeton Bowen, Boston; Harvard Medical School, Boston, 1884; member of the Massachusetts Medical Society; instructor of dermatology at his alma mater from 1896 to 1912, assistant professor from 1902 to 1907, Edward Wigglesworth professor from 1907 to 1912 and since 1912 professor emeritus at his alma mater; for many years on the staff of the Massachusetts General Hospital; aged 83; died, Dec. 3, 1940, of pyelonephritis.

Percy Hypes Swahlen ♂ St. Louis; St. Louis University School of Medicine, 1903; associate professor of gynecology and obstetrics at his alma mater; fellow of the American College of Surgeons; past president of St. Louis Medical Society; obstetrician, St. Ann's Maternity and Mount St. Rose hospitals; visiting obstetrician and gynecologist, St. Louis City Hospital; gynecologist, St. John's Hospital; aged 63; died, Dec. 10, 1940, of coronary thrombosis.

Louis Emmitt Brown ♂ Akron, Ohio; Baltimore Medical College, 1903; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological Association; fellow of the American College of Surgeons; member of the city board of health; served during the World War; past president of the Akron Academy of Ophthalmology and Otolaryngology; on the staff of the City Hospital; aged 59; died, Dec. 11, 1940.

Ogden Matthias Edwards Jr. ♂ Pittsburgh; Columbia University College of Physicians and Surgeons, New York, 1896; professor of pediatrics at the University of Pittsburgh School of Medicine from 1909 to 1919 and acting dean from 1917 to 1919; formerly a member of the staffs of the Western Pennsylvania Hospital, St. Francis Hospital and the Children's Hospital; aged 71; died, Dec. 28, 1940.

Arthur Elias Leitch ♂ Saginaw, Mich.; Detroit College of Medicine, 1893; past president and secretary of the Saginaw County Medical Society; served during the World War; aged 68; on the staffs of Saginaw General Hospital, St. Luke's Hospital and St. Mary's Hospital, where he died, Dec. 9, 1940, of abscess of the right kidney.

Walter Scott Turnbull, Vancouver, B. C., Canada; University of Toronto Faculty of Medicine, 1903; member of the North Pacific Surgical Association; past president of the British Columbia Medical Association; for many years on the staff of the Vancouver General Hospital and the Grace Hospital; aged 62; died in November 1940.

Edward Leo Zimmerman ♂ Eugene, Ore.; Jefferson Medical College of Philadelphia, 1912; served during the World War; past president of the Oregon State Medical Society and the Lane County Medical Society; on the staff of the Sacred Heart Hospital; aged 51; died, Dec. 2, 1940, of arteriosclerosis, thrombosis and myocarditis.

Joseph Sylvester Miller, York, Pa.; College of Physicians and Surgeons, Baltimore, 1880; member of the Medical Society of the State of Pennsylvania; past president of the York County Medical Society; served on the staff of the York Hospital in various capacities; aged 84; died, Dec. 8, 1940, of thrombosis and gangrene.

George D. Lummis, Middletown, Ohio; Medical College of Ohio, Cincinnati, 1884; president of the International Health Officers Association; for more than half a century health commissioner of Middletown; for many years member of the Ohio Public Health Council; aged 77; died, Dec. 26, 1940, of coronary thrombosis.

Charles F. Zeller ☉ Jerome, Idaho; University Medical College of Kansas City, Mo., 1903; past president of the Southside Medical Society; on the staff of St. Valentine's Hospital, Wendall; aged 60; died, Dec. 1, 1940, in Rochester, Minn., of carcinoma of the colon and peritonitis.

Arthur Raphael Brennan, Brooklyn; Baylor University College of Medicine, Dallas, Texas, 1921; member of the Medical Society of the State of New York; on the staffs of St. Peter's Hospital and St. Mary's Hospital; aged 44; died, Dec. 11, 1940, of coronary thrombosis.

Clarence Ross Hepler ☉ Parsons, Kan.; University Medical College of Kansas City, Mo., 1902; member of the American Psychiatric Association; at one time health officer of Cherokee County and Sedgwick County; aged 66; died, Nov. 17, 1940, of coronary thrombosis.

A. J. Markley, Belvidere, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1881; member and for many years treasurer of the Illinois State Medical Society; aged 82; died, Dec. 13, 1940, in St. Joseph's Hospital of carcinoma of the transverse colon.

William Langdon Haskell ☉ Lewiston, Maine; Medical School of Maine, Portland, 1894; fellow of the American College of Surgeons; served during the World War; on the staff of St. Mary's General Hospital; aged 70; died, Dec. 9, 1940, of arteriosclerosis.

Edward William Bing, Chester, Pa.; Jefferson Medical College of Philadelphia, 1877; member of the Medical Society of the State of Pennsylvania; also a pharmacist; aged 84; formerly on the staff of the Chester Hospital, where he died, Dec. 10, 1940.

Henry Augustus Kurth ☉ Schenectady, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1890; for many years on the staff of the Ellis Hospital; aged 77; died, Dec. 7, 1940, of carcinoma of the prostate.

J. Sumner Teter, Toledo, Ohio; Starling Medical College, Columbus, 1904; member of the Ohio State Medical Association; for many years on the staff of the Robinwood Hospital; served during the World War; aged 63; died, Dec. 6, of cerebral hemorrhage.

William George Carnathan ☉ Butler, Ala.; Medical College of Alabama, Mobile, 1905; president of the Choctaw County Medical Society; formerly county health officer; aged 58; died, Nov. 30, 1940, in Riley's Hospital, Meridian, of intestinal obstruction.

Herman Verplanck Hoffman ☉ San Francisco; University of California Medical Department, San Francisco, 1905; served during the World War; on the staffs of St. Mary's Hospital and Dante Hospital; aged 58; died, Nov. 16, 1940, of coronary disease.

Thomas Francis Maher ☉ Newington, Conn.; Yale University School of Medicine, New Haven, 1901; served during the World War; on the staff of the Veterans Administration Facility; aged 62; died, Dec. 18, 1940, of chronic myocarditis.

Jacob Kinzer Shell, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1881; aged 78; died, Dec. 10, 1940, in the Presbyterian Hospital of hypertrophy of the prostate and arteriosclerotic heart disease.

Norman Clyde Mills, Clarion, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; aged 63; died, Dec. 6, 1940, in the Brookville (Pa.) Hospital of injuries received when he was struck by an automobile.

Carlo D. Martinetti ☉ Orange, N. J.; Regia Università degli Studi di Siena Facoltà di Medicina e Chirurgia, Italy, 1903; on the staff of the Community Hospital, Montclair; aged 62; died, Dec. 9, 1940, of cerebral hemorrhage.

Arthur Rockwell Addy, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1899; served during the World War; aged 70; died, Dec. 13, 1940, in the Kings County Hospital of arteriosclerosis.

George Walley Heck, Bethlehem, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1907; member of the Medical Society of the State of Pennsylvania; aged 59; died, Dec. 9, 1940, of cerebral hemorrhage.

Greene L. Johnson ☉ Harrodsburg, Ky.; Hospital College of Medicine, Louisville, 1907; past president of the Mercer County Medical Society; formerly county health officer; aged 56; died, Dec. 4, 1940, of carcinoma.

Charles M. Seaton, Morrisonville, Ill.; Illinois Medical College, Chicago, 1902; member of the Illinois State Medical Society; aged 64; died, Dec. 4, 1940, in St. Vincent Hospital, Taylorville, of angina pectoris.

L. Lester Self, Cherryville, N. C.; University College of Medicine, Richmond, 1901; aged 62; died, Dec. 4, 1940, in the Charlotte (N. C.) Eye, Ear and Throat Hospital of myocarditis and coronary thrombosis.

Ned Snyder, Brownwood, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1909; member of the State Medical Association of Texas; aged 55; died in November 1940.

William Edward McGuire, Cottonwood, Ill.; Barnes Medical College, St. Louis, 1899; member of the Illinois State Medical Society; for many years county coroner; aged 67; died, Dec. 10, 1940, of heart disease.

Robert Lewis Segrest, Wisner, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1907; member of the Louisiana State Medical Society; aged 58; died, Nov. 29, 1940.

Tilton Edwin Tillman ☉ San Francisco; Cooper Medical College, San Francisco, 1902; served during the World War; aged 59; died, Dec. 5, 1940, of coronary occlusion and pulmonary infarction.

Samuel Miles Robinson, Orlando, Fla.; Hahnemann Medical College and Hospital of Philadelphia, 1912; aged 84; died, Dec. 4, 1940, of typhus fever, chronic myocarditis and arteriosclerosis.

Nathan David Garnsey ☉ Kinderhook, N. Y.; Albany (N. Y.) Medical College, 1891; served during the World War; aged 76; died, Dec. 4, 1940, of cerebral thrombosis and arteriosclerosis.

Amos Carson Duncan, Forest City, N. C.; North Carolina Medical College, Charlotte, 1919; aged 46; died, Dec. 10, 1940, in Hollandale, Fla., of mesenteric thrombosis and cirrhosis of the liver.

John Joseph Kowarskas, Chicago; Chicago Medical School, 1927; member of the Illinois State Medical Society; aged 42; died, Dec. 14, 1940, in the Holy Cross Hospital of diverticulitis.

Frank R. Shoemaker, Hollidaysburg, Pa.; Medico-Chirurgical College of Philadelphia, 1895; aged 66; died, Dec. 2, 1940, in the Nason Hospital, Roaring Spring, of septicemia.

James Thruston Wolfe ☉ Washington, D. C.; George Washington University School of Medicine, Washington, 1908; aged 59; died, Dec. 8, 1940, of coronary occlusion.

James Pringle Crawford, Nashville, Tenn.; University of Maryland School of Medicine, Baltimore, 1893; served during the World War; aged 73; died, Nov. 25, 1940.

Joseph S. Lehman, Midway, Ky.; Cleveland Medical College, 1896; aged 71; died, Dec. 13, 1940, in the Good Samaritan Hospital, Lexington, of ruptured aneurysm.

Lee A. Wixsom ☉ Chicago; Chicago Medical School, 1918; aged 48; died, Dec. 9, 1940, in the Englewood Hospital of septicemia, pyemia and diabetes mellitus.

William Edmund Aughinbaugh, New York; National University Medical Department, Washington, D. C., 1897; also a lawyer; aged 69; died, Dec. 18, 1940.

James Balance Wood, St. Louis; St. Louis College of Physicians and Surgeons, 1917; served during the World War; aged 47; was found dead, Nov. 23, 1940.

Albert Sidney Steagall, Abbeville, Ala.; Medical College of Alabama, Mobile, 1888; formerly bank president; aged 74; died, Nov. 28, 1940, of heart disease.

Benjamin Lucas Norwood, McBee, S. C.; Louisville (Ky.) Medical College, 1887; aged 74; died, Dec. 8, 1940, of bronchopneumonia and nephritis.

Thomas C. Williams, New York; New York Homeopathic Medical College, New York, 1881; aged 82; died, Dec. 5, 1940, of myeloid leukemia.

William Fraser Mackay, Port Washington, B. C., Canada; University of Toronto Faculty of Medicine, 1900; aged 70; died in November 1940.

Lytle Caldwell Adams, La Grange, N. C.; North Carolina Medical College, Davidson, 1903; aged 63; died, Dec. 8, 1940, of heart disease.

Correspondence

ACUTE APPENDICITIS IN MILITARY HOSPITALS

To the Editor:—An extensive experience in the management of acute appendicitis during the World War led to the publication of an article entitled "Immediate Surgical Management of Acute Appendicitis in Military Hospitals" (*Surg., Gynec. & Obst.* 28:303 [March] 1919), suggesting a possible relationship between the onset of this condition in those cases in which there is a history of previous attacks and the method of administering the triple typhoid vaccine.

In view of the fact that a new army is being inducted into service, it seems to me that this article carries some conclusions that may be of importance, especially to the younger medical officers of the army. I would therefore call special attention to the lowering of the white blood cell count following the administration of triple typhoid vaccine, with a lower white cell count at the onset of an attack of acute appendicitis.

The blood picture sometimes puzzled medical officers in making a prompt diagnosis of acute appendicitis. Any factor which may delay a decision in making a prompt diagnosis in acute appendicitis is hazardous and must be corrected in order that surgery may not be delayed. I shall not attempt to discuss the relative importance of examinations of the blood as one of the factors in making a prompt diagnosis in acute appendicitis; suffice it to say that it may be of paramount importance in certain diagnostic decisions in acute abdominal conditions.

HUGH McKENNA, M.D., Chicago.

ROLE OF LACTIC ACID IN DENTAL CARIES

To the Editor:—In THE JOURNAL of January 4 there is a communication from Dr. J. Lewis Blass, who in Correspondence discusses the studies of Neuwirth and Klosterman on the production of lactic acid by oral micro-organisms after the introduction of concentrated carbohydrate into the mouth. Dr. Blass states: "Control experiments by these workers demonstrate that this rapid production of lactic acid in the oral cavity can be ascribed to the activity of oral micro-organisms. Thus, for the first time now there is not only a demonstration of the production of acids in the oral cavity but also a demonstration of the production of a definite acid—lactic acid."

Dr. Blass mentions that Neuwirth and Klosterman (*Proc. Soc. Exper. Biol. & Med.* 45:464 [Oct.] 1940) employed the ultramicro method for lactic acid developed by Muntz and myself, but he neglects to point out that subsequent to the development of this new technic Muntz and I determined the quantity of lactic acid in various types of carious lesions (*J. Dent. Research* 18:259, 1939). Later, in the course of investigations with Bradel on the metabolism of dental plaque material we demonstrated the production of lactic acid from dextrose by plaques (abstracts of the Dec. 30, 1939 Proceedings of the Subsection on Dentistry, American Association for the Advancement of Science, reprinted in *J. Am. Coll. Dentists* 7:80 [March-June] 1940; also see *Proc. Soc. Exper. Biol. & Med.* 45:104 [Oct.] 1940). We have also shown the capacity of dental plaque material to produce lactic acid from dextrose, fructose, sucrose, maltose and starch (*J. Dent. Research* 19:473 [Oct.] 1940).

Dr. Blass appears to stress a point of no great significance, i. e. the well known ability of certain oral micro-organisms to produce lactic acid. The important problem is to establish the precise role played by this acid in the chemopathogenesis of

human dental caries. We have developed a sufficiently sensitive and specific lactic acid method for investigation of the role of lactic acid in dental caries. However, despite the investigations conducted with this method here, we feel that the question is still unanswered. For the time being it seems best to regard the lactic acid produced by oral micro-organisms or dental plaques as an index of their metabolic activities rather than as the only proved agent in the chemopathogenesis of dental caries.

BENJAMIN F. MILLER, M.D.,
Walter G. Zoller Memorial Dental
Clinic and the Department of
Medicine, University of Chicago.

AMERICAN FEDERATION FOR CLINICAL RESEARCH

To the Editor:—The organization of a society to be called the American Federation for Clinical Research has been proposed, and the idea is meeting with an enthusiastic reception. It is to be a society of young men and women interested in and carrying on clinical investigation. There will be two classes of membership: (a) club and (b) individual. A club membership is for any group of persons concerned with investigation in clinical medicine or allied sciences. An individual membership is for any one who has completed a meritorious investigation in these fields and is interested in continuing investigation. It is proposed to limit admission to individual membership to persons under 40 years of age. "Clubs" may be formed with membership of any age at clinics, hospitals or medical schools acting individually or as groups in cities, states or provinces or groups of states of the United States and Canada. "Clubs" will meet as frequently as seems desirable. There will be one general meeting with a scientific program, held in rotation in different parts of the United States and Canada. Annual dues probably will not exceed \$1. The organization meeting will be held at Haddon Hall, Atlantic City, N. J., on Monday, May 5. For those desiring to become individual members application blanks will be sent on request, mailed to Dr. Henry A. Christian, 1731 Beacon Street, Brookline, Mass., who is acting for a group of fourteen physicians who in 1908 participated in the organization of the American Society for the Advancement of Clinical Investigation. Questions regarding club membership may be similarly addressed.

HENRY A. CHRISTIAN, M.D., Brookline, Mass.

TUBERCULOSIS CARE AT BELLEVUE

To the Editor:—In Queries and Minor Notes (THE JOURNAL, Dec. 28, 1940) your correspondent conveys a misapprehension of practices at Bellevue Hospital in the treatment of Negroes with tuberculosis. In the Tuberculosis Service of this institution uniform criteria are followed in all cases in the use of collapse therapy. Among these criteria is an estimate of the patient's natural resistance, and it sometimes happens on this account that collapse therapy is used earlier for a Negro than it would be for a white patient with a similar lesion. On the other hand, the proportion of cases of acute pneumonic tuberculosis admitted to this service is higher among Negroes than among white patients. It is generally understood that the indiscriminate employment of collapse therapy for such forms of the disease may be harmful rather than helpful; therefore artificial pneumothorax and other mechanical procedures, when indicated, are used with extraordinary caution; in many cases such treatment is postponed until the acute inflammatory reactions have subsided.

J. BURNS AMBERSON JR., M.D., New York.

University of Oregon Medical School.....	(1935)	Minnesota
Jefferson Medical College of Philadelphia.....	(1894)	Nebraska
University of Tennessee College of Medicine.....	(1939)	Texas
Baylor University College of Medicine.....	(1935), (1936), (1939)	Texas
Universität Bern Medizinische Fakultät.....	(1937)	Mass.

* Licenses have not been issued.

Connecticut Homeopathic November Report

Dr. Joseph H. Evans, secretary, Connecticut Homeopathic Medical Examining Board, reports the written examination for medical licensure held at Derby, Nov. 12-13, 1940. The examination covered seven subjects and included 70 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. The following school was represented:

School	PASSED	Year Grad.	Per Cent
Hahnemann Med. College and Hospital of Philadelphia	(1940)		78.5*

One physician was successful in the oral examination held for endorsement applicants at Bridgeport, October 15. The following school was represented:

School	PASSED	Year Endorsement Grad.	of
New York Homeopathic Medical College and Flower Hospital	(1930)*		Indiana

* License has not been issued.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Act (Texas): Only Holders of Unlimited Licenses Eligible for Reciprocity.—The Texas medical practice act requires all applicants for licensure to practice medicine, regardless of their school of practice, to possess substantially equivalent educational qualifications as to years of study and to pass identical examinations in twelve subjects named in the act. Successful applicants are then licensed to practice medicine and surgery without restriction. An applicant who possesses a license to practice medicine and surgery without restriction issued by a state having standards equal to the standards required by the Texas medical practice act may be licensed by reciprocity and without examination (Vernon's Ann. Civ. St., Art. 4500, as amended, Laws, 1939, p. 352).

The appellants, twelve osteopaths not residents of Texas, possessed Missouri licenses permitting them to practice osteopathy alone and to use drugs only to a very limited extent. They instituted proceedings to compel the State Board of Medical Examiners of Texas to issue them licenses by reciprocity. The trial court entered a judgment for the board and the osteopaths appealed to the court of civil appeals of Texas, Austin.

The osteopaths admitted on appeal that they were not entitled to licenses by reciprocity but they contended that the Texas board had issued licenses by reciprocity to nonsectarian physicians possessing licenses to practice medicine and surgery in Missouri, and that the Missouri medical practice act did not impose standards equal to those imposed by the Texas act in that the Missouri act requires applicants to submit to examinations in only seven subjects while the Texas act requires examinations in twelve subjects. This, the osteopaths contended, constituted a discrimination against them in violation of Article 16, Section 31, of the Texas Constitution which provides that the legislature may pass laws prescribing the qualifications of practitioners of medicine in the state "but no preference shall ever be given by law to any schools of medicine." Since the osteopaths, said the court of civil appeals, have admitted that they have no right to a license by reciprocity, we do not know on what theory they have any right to maintain proceedings of this sort. Manifestly, the decision by this court as to licentiates of the Missouri "allopathic" school who have been issued licenses by reciprocity by the Texas board cannot bind such licentiates because they are not parties; and neither the osteopaths nor this court have any right to require or has entered a declaratory judgment affecting future applicants for licenses by reciprocity.

The osteopaths argued that the effect of the board's action when it licensed by reciprocity "Missouri allopaths" and refused such licensure to Missouri osteopaths amounted to a violation of the constitutional provisions referred to, in that such action was tantamount to saying that if an applicant possesses a license to practice osteopathy only in Missouri he cannot receive by reciprocity a license to practice osteopathy in Texas, thus making the osteopath's right to a license by reciprocity dependent on whether or not he could practice any and all of the healing arts. The Texas legislature, answered the court, in accordance with the constitutional mandate has provided for examinations relating to all who desire to practice medicine, which examinations are the same with respect to all schools of medicine, and such requirements do not prefer any school of medicine in contravention of the constitution, because they apply to all persons alike. The Texas statutes simply define a "practitioner of medicine" and require him to pass certain examinations touching his qualifications before he may obtain a license to practice any art of healing. When so licensed he may practice all of the arts of healing, without regard to any school of medicine to which he may belong. Manifestly, he cannot contend that, because he belongs to a certain school of medicine or does not desire to practice all of the arts of healing, he may take only such examinations as he may think will qualify him to practice one school of medicine or one art of healing. Nor does the fact that the statutes in question do not prohibit him to do so render them repugnant to the constitutional inhibition against the preferment of any one or more schools of medicine. The state constitution and statutes are not concerned with any particular school of medicine. They apply to all schools of medicine and to all persons alike, in that they provide that all who desire to practice medicine shall pass certain examinations relating to their qualifications, which entitles them to practice any one or all of the arts of healing. Nor does the fact that the defendant board has granted reciprocity licenses to some "Missouri allopaths" without examination discriminate against the appellants. These osteopaths do not possess the statutory requirements for a statutory reciprocity license and, having no right in the matter, they cannot complain of the action of the board as to others who possess other qualifications different from their own. The subjects of examination required of "Missouri allopaths" are not the same as those required of the Missouri osteopaths. And, suffice it to say, while Missouri allopaths are required to take examinations in only seven subjects, they are issued a license by the state of Missouri to practice medicine in all its phases, the same as the Texas license authorizes its practitioners to practice medicine in all its phases, although the Texas practitioner is required to be examined in twelve subjects. Whether the seven subjects in which the "Missouri allopaths" are required to be examined substantially cover the twelve subjects in which Texas practitioners of medicine are required to be examined is a matter within the jurisdiction of the defendant board; and there was no proof whatever that this was not true in the instant case.

Accordingly, the court of civil appeals affirmed the judgment of the trial court refusing to require the Texas board of medical examiners to license the osteopaths without examination.—*Ashby et al. v. Board of Medical Examiners of Texas*, 142 S. W. (2d) 371 (Texas, 1940).

Society Proceedings

COMING MEETINGS

Annual Congress on Medical Education and Licensure, Chicago, Feb. 17-18. Dr. W. D. Cutter, 535 North Dearborn St., Chicago, Secretary.

American Orthopsychiatric Association, New York, Feb. 20-22. Dr. Norville C. La Mar, 149 East 73d Street, New York, Secretary.
Central Surgical Association, Ann Arbor, Mich., Feb. 28-March 1. Dr. George M. Curtis, Ohio State University, Columbus, Ohio, Secretary.
Mid-South Post-Graduate Medical Assembly, Memphis, Tenn., Feb. 11-14. Dr. A. F. Cooper, Goodwyn Institute Bldg., Memphis, Tenn., Secretary.
Pacific Coast Surgical Association, Los Angeles, Feb. 19-22. Dr. H. Glenn Bell, University of California Hospital, San Francisco, Secretary.
Society of University Surgeons, St. Louis, Feb. 14-15. Dr. Frank Glenn, 525 East 68th St., New York, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Pathology, Boston

16:707-878 (Nov.) 1940

- Congenital Defects in Diaphragm. A. A. Liebow, Meriden, Conn., and H. C. Miller, New Haven, Conn.—p. 707.
Cytology of Fox Encephalitis and Effects of Centrifugation on Intracellular Inclusions. A. M. Lucas, Ames, Iowa.—p. 739.
Etiology of Calcified Nodular Aortic Stenosis. E. M. Hall and T. Ichioka, Los Angeles.—p. 761.
Studies on Involution of Fetal Cortex of Adrenal Glands. Miriam C. Benner, Denver.—p. 787.
Response of Central Nervous System to Application of Carcinogenic Hydrocarbons: II. Methylcholanthrene. J. H. Peers, Columbia, Mo.—p. 799.
Pathology and Pathogenesis of Mammary Tumors Occurring Spontaneously in Albino Strain of Rats. A. W. Wright, G. H. Klinck Jr. and J. M. Wolfe, Albany, N. Y.—p. 817.
Primary Reticulum Cell Sarcoma of Spine: Report of Case with Autopsy. J. E. Edwards, Boston.—p. 835.
Comparative Experimental Studies of 200 Kilovolt and 1,000 Kilovolt Roentgen Rays: II. Biologic Effects on Bone Marrow of Albino Rat. J. R. Lingley, E. A. Gall and J. A. Hilcken, Boston.—p. 845.

American Journal of Psychiatry, New York

97:513-752 (Nov.) 1940. Partial Index

- Direct Measurement of Nervous and Muscular States with Integrating Neurovoltage (Action Potential-Integrator). E. Jacobson, Chicago.—p. 513.
Quantitative Sex Hormone Studies in Homosexuality, Childhood and Various Neuropsychiatric Disturbances. R. Neustadt and A. Myerson, Boston.—p. 524.
Oxygen Consumption in Psychoses of Senium. D. E. Cameron, H. E. Himwich, S. R. Rosen and J. Fazekas, Albany, N. Y.—p. 566.
Clinical Significance of Bisulfite Binding Substances (B. B. S.) in Blood and Cerebrospinal Fluid. H. Wortis, E. Bueding and W. E. Wilson, New York.—p. 573.
*Treatment of Parkinsonian Syndrome with Bulgarian Belladonna Root and Amphetamine (Benzedrine) Sulfate. E. Davidoff, E. C. Reifstein Jr. and N. R. Chambers, Syracuse, N. Y.—p. 589.
Histamine in Treatment of Psychosis: Psychiatric and Objective Psychologic Study. R. W. Robb, B. Kovitz and D. Rapaport, Osawatimie, Kan.—p. 601.
Migraine Equivalents. D. Slight, Chicago, and D. A. R. Morrison, Oconomowoc, Wis.—p. 623.
Study of Problem of Malnutrition in Institutionalized Psychotic Patients. H. C. Sharp and C. N. Baganz, Lyons, N. J.—p. 650.
Ideas of Contamination as Defense Against Sexuality. G. S. Sprague, White Plains, N. Y.—p. 659.
Nitrous Oxide Anoxia in Treatment of Schizophrenia: Report of Twenty-Four Cases. E. J. Fogel and L. P. Gray, Warren, Pa.—p. 677.
Further Experiences with Picrotoxin as Convulsant in Treatment of Mental Illnesses: Method of Combining Picrotoxin with Metrazol. A. A. Low, Elizabeth MacDougall, E. Ross, M. Sachs and D. Levitin, Chicago.—p. 686.
Masculinity and Femininity in Psychotic Patients, as Measured by Terman-Miles Interest-Attitude Analysis Test. Beulah Bosselman, Chicago, and B. Skorodin, Manteno, Ill.—p. 699.
Treatment of Morbid Sex Craving with Aid of Testosterone Propionate. H. S. Rubinstein, Baltimore; H. D. Shapiro and W. Freeman, Washington, D. C.—p. 703.

Bulgarian Belladonna and Amphetamine Sulfate for Parkinsonian Syndrome.—Davidoff and his collaborators used rabellon (a synthetic combination containing the same concentration of alkaloid as the most effective extracts of Bulgarian belladonna root) in combination with amphetamine sulfate for the treatment of 15 patients with postencephalitic and 10 with arteriosclerotic or idiopathic parkinsonism. Many of these patients had been subjected to various other therapies. Seven of the 10 patients with the postencephalitic type of the disorder were psychotic and only 1 with the arteriosclerotic type was thought to have a psychosis. The procedure for administering rabellon depends on establishing the optimal dose for the individual patient. This is done by increasing daily the dose of a fourth of a tablet once a day to a fourth three times a day

and then to half a tablet three times a day and so on. The patient is instructed to eliminate all alcohol, coffee and nicotine and to avoid meats, particularly spiced meats. When the minimal dosage that produces the optimal effect is established it is maintained thereafter. For patients who tolerate the drug poorly the dosage is not increased as rapidly. The appearance of mild toxic manifestations in these patients may be of value in indicating that the optimal dosage has been exceeded. After the patients had been maintained on a stable program of rabellon medication for several weeks, amphetamine sulfate medication was begun. The initial dose was 5 mg. in the morning and at noon. The dosage was increased at weekly intervals by increments of 5 mg. until the maximal of from 30 to 40 mg. was reached. The optimal dosage for many patients was 15 to 20 mg. daily. The dose of rabellon was decreased as the dose of amphetamine was increased. On the combination therapy 8 of the 15 patients with postencephalitic parkinsonism exhibited marked improvement, 3 moderate improvement and 4 no benefit; that is to say, 7 of the 8 without psychosis and 4 of the 7 with psychosis were favorably influenced by the therapy. Of the 10 with idiopathic and arteriosclerotic parkinsonism, 5 showed considerable improvement and 5 were unimproved. The patient with idiopathic parkinsonism with psychotic manifestations showed temporary amelioration but relapsed and was classified as unimproved. The results show that the combined therapy is superior to other forms of treatment.

American Journal of Public Health, New York

30:1391-1500 (Dec.) 1940

- Health Aspects of Landfills, with Special Reference to Recent Experiences in New York City. J. L. Rice and S. Pincus, New York.—p. 1391.
Public Health Engineering Aspects of Epidemiologic Investigations of Water Borne and Food Borne Outbreaks. A. E. Gorman, Chicago.—p. 1399.
A Restatement of the General Hospital Situation. J. W. Mountin, Washington, D. C.—p. 1406.
Incubators for Premature Infants. Ethel C. Dunham, H. C. Dickinson, Grace J. Govens and Juanita Witters, Washington, D. C.—p. 1415.
Renaissance of Industrial Hygiene. C. D. Selby, Detroit.—p. 1422.
Use of Miniature X-Ray Films in Tuberculosis Case Finding. B. H. Douglas, C. C. Birkelo, G. E. Harmon and H. F. Vaughan, Detroit.—p. 1427.
Method of Measuring Effectiveness of Preventive Treatment in Reducing Morbidity. C. A. Sargent and Margaret Merrell, Baltimore.—p. 1431.
Present Status of Public Health Education. C. V. Akin, Washington, D. C.—p. 1436.
Work of the Committee on Professional Education. W. P. Shepard, San Francisco.—p. 1443.
Education and Training of the Physician for a Public Health Career. E. S. Godfrey Jr., Albany, N. Y.—p. 1447.
Education and Training of Personnel Other Than Physicians. A. Wolman, Baltimore.—p. 1452.

American Journal of Surgery, New York

50:447-792 (Dec.) 1940. Partial Index

- Treatment of Intractable Pain. R. J. Behan, Pittsburgh.—p. 450.
Management of Local Anesthesia, Particularly for the Diabetic Patient. W. E. Burnett, Philadelphia.—p. 474.
Paraldehyde: Basal Anesthetic for Tonsillectomy in Children. L. Ziserman and H. B. Cohen, Philadelphia.—p. 506.
Treatment of Ingrown Toe Nail. D. H. O'Donoghue, Oklahoma City.—p. 519.
Dislocations of Knee Joint, with Special Reference to Accessory and After Treatment. A. Krida, New York.—p. 534.
Emergency Treatment, Transportation and Early Management of Fractures. A. J. Schein, New York.—p. 536.
Paronychia and Bone Felon. H. B. Macey, Rochester, Minn.—p. 553.
Treatment of Fractures of Clavicle, Ribs and Scapula. W. C. McCall and D. A. Kelly, Cleveland.—p. 558.
Improved Management of Gangrene of Foot. W. F. Bowers and J. C. Kennedy, Omaha.—p. 573.
Noninflammatory Nodules in Female Breast. K. E. Hynes, Sedro-Woolley, Wash.—p. 597.
Lesions of Male Breast. J. H. Lazzari, Cleveland.—p. 630.
Symptomatic Treatment of Acute Epididymitis: Preliminary Report. R. Lich Jr., M. Bryant and E. C. Strode, Louisville, Ky.—p. 633.
Office Treatment of Hemorrhoids. J. J. Corbett, Detroit.—p. 641.
Pruritus Ani—An Allergy: Its Diagnosis and Treatment. E. G. Martin, Detroit.—p. 653.
Emergency Treatment of Head Injuries in Accident Dispensary. M. Scott, Philadelphia.—p. 678.
Postoperative Care to Restore Normal Physiology. P. P. Riggall, Washington, Pa.—p. 724.
Furuncles and Carbuncles: Prevention of General Postoperative Infection. H. Lilienthal, New York.—p. 732.
Corns—Their Etiology and Treatment. R. T. McElvenny, Oak Park, Ill.—p. 761.
Effects of Radiation on Cancer. A. L. L. Bell, Brooklyn.—p. 776.
Early Diagnosis of Cancer. I. I. Kaplan, New York.—p. 781.

Annals of Internal Medicine, Lancaster, Pa.

14:757-952 (Nov.) 1940

- Role of Gonadal and Adrenal Cortical Hormones in Production of Edema. G. W. Thorn, Baltimore, and K. Emerson Jr., New York.—p. 757.
- Dilantin Sodium: Its Influence on Conduct and on Psychometric Ratings of Institutionalized Epileptics. A. T. Ross, Indianapolis, and Virginia Jackson, Caro, Mich.—p. 770.
- *Blood Sedimentation Test as Routine Diagnostic Procedure: Clinical Evaluation of 2,063 Cases. E. B. Agnor, Atlanta, Ga.—p. 774.
- Importance of Allowing Time for "Physiologic Adjustment" in Establishing the Diet in Diabetes. R. R. Snowden, Pittsburgh.—p. 789.
- *Pulmonary Emphysema: Study of Its Relation to Heart and Pulmonary Arterial System. R. L. Parker, Rochester, Minn.—p. 795.
- Diagnostic Value of Regression of Secondary Sexual Characteristics in Cases of Hemochromatosis. E. J. Kepler, D. R. Nichols and J. H. Mills, Rochester, Minn.—p. 810.
- Anorexia Nervosa. E. P. McCullagh and W. R. Tupper, Cleveland.—p. 817.
- Emotions and Bodily Changes: Report of Some Recent Psychosomatic Studies. F. Dunbar, New York.—p. 839.
- *Mucous Colitis: Delineation of Syndrome with Certain Observations on Its Mechanism and on Role of Emotional Tension as Precipitating Factor. B. V. White and C. M. Jones, Boston.—p. 854.
- *Tuberculosis Among Students and Graduates in Nursing. J. A. Myers, Ruth E. Boynton, H. S. Diehl, T. L. Streukens, Minneapolis, and P. T. Y. Ch'iu, Peiping, China.—p. 873.
- Arterial Oxygen Saturation in Cirrhosis of Liver. R. C. Darling, New York.—p. 898.
- Study of Acute Leukoses. J. Kaufmann and L. Lowenstein, Montreal, Canada.—p. 903.

Blood Sedimentation Test as Routine Diagnostic Procedure.—Agnor evaluates the sedimentation test from a study of the records of 2,063 patients with all types of disease. The test was performed as a routine procedure by a modification of the Westergren method. The one hour determination was considered to be the significant value, and a rate of more than 20 mm. was considered abnormal. The study indicates that the sedimentation rate is important enough to be employed as routine, as are blood counts and urinalyses in some diseases and serologic tests for syphilis. In the present series 176 cases, 8.5 per cent, showed changes in the serologic reactions of the blood. Similarly, 331 cases, 16 per cent, with abnormal blood counts gave specific information leading to the detection of the particular disease. Also in 207 cases, 10 per cent, the urinalysis gave specific information leading to a diagnosis. Therefore in 34.5 per cent of the cases the generally employed routine diagnostic tests were of specific value. On the other hand 702 cases, 34.1 per cent, showed an increased sedimentation rate, which although not specifically yet definitely indicated disease. Further analysis shows that of 1,549 patients with definite organic disease 681, or 43.9 per cent, had elevated rates; of the 514 without such evidence only 4 per cent had elevated rates. Among the latter patients were 5 instances in which the sedimentation rate was more than 30 mm. in one hour and 16 in which it was between 21 and 30 mm. The records of these 21 patients were subjected to a careful study; among them there was only 1 man, and he was discharged as a case of unclassified psychosis. He gave a history of having been treated in a tuberculosis sanatorium for eighteen months a few years before. Examination of the chest and of the sputum was negative, but tuberculosis may have accounted for the rapid rate. Of the remaining 20 patients with elevated rates, 10 were obese and for the other 10 there is no apparent explanation. There is no apparent association of obesity and increased sedimentation rate, but the coincidence was observed. Certain organic diseases seldom produce an increase in the blood sedimentation rate. Other diseases (chronic and acute infections, malignant conditions, localized suppurations and tuberculosis) may have an increased rate. The 1,549 cases in which there was evidence of organic disease were subdivided into cases of diseases usually associated with an increased sedimentation rate and a group in which such evidence was lacking. There were 85 cases with elevated rates in which the organic disease present is usually associated with a normal sedimentation rate. These 85 and the 21 previously mentioned represent 106 cases, 5 per cent of the series, in which an increased sedimentation rate was misleading. Therefore a sedimentation rate of more than 20 mm. in one hour was indicative of an organic disease of a type usually associated with an increased sedimentation rate in 95 per cent of the cases. An increased sedimentation rate in males showing no evidence of disease was observed only once. In general an increased rate in the male was more likely to be present with a disease usually associated with an increased rate than in the female.

Pulmonary Emphysema.—In studying the heart and pulmonary arterial tree in 32 cases of essential emphysema, Parker found that emphysema enlarged the right ventricle in 75 per cent and caused heart failure with decompensation in 44 per cent of the entire group. The severity of emphysema seemed closely correlated with the incidence of congestive heart failure as well as the frequency and extent of right ventricular enlargement. Some arteriosclerosis of the pulmonary arterial tree was observed among 80 per cent of the cases. Arteriosclerotic changes were noticed most frequently in the arterioles, and narrowing of the arteriolar bed was found in 66 per cent of the cases studied. The degree of obliteration of the arteriolar bed seemed influenced by the severity of the emphysema, yet there was no direct correlation between the degree of arteriolar sclerosis and that of the right ventricular enlargement, nor any relationship between the extent of the pulmonary arteriolar changes and the arteriosclerotic changes in the coronary arteries or the aorta. Therefore the author concluded that the arteriosclerotic changes of the pulmonary vessels in emphysema represent secondary manifestations of an existent hypertension within the pulmonary circuit which probably is produced by obstruction in the capillary bed. Although it may be assumed that when the degree of obstruction in the arteriolar system is great there is an augmentation of the pulmonary hypertension, it is doubtful that the amount of pulmonary arteriosclerosis usually seen in emphysema produces alone a serious obstruction to the pulmonary circulation.

Mucous Colitis.—White and Jones made a thorough clinical study of 60 patients with mucous colitis with the view of obtaining a basis for statistical deductions. Fifty-seven of the patients were studied psychologically in order to determine the role of precipitating emotional factors and personality types of the victims. Symptoms and signs of mucous colitis are constipation or diarrhea, abdominal cramps aggravated during peristaltic stimulation, palpable and tender sigmoid colon and certain minimal mucosal changes in the rectosigmoid as observed through the sigmoidoscope. Abdominal pain was the only constant observation. Mucous colitis may exist without abdominal pain. The disease usually has its onset in early adult life. The average age of the 60 patients at the onset of symptoms was 23.4 years. At the time of the study their average age was 35.8 years, indicating a long prediagnostic period. In 38 instances the original diagnosis was other than "colitis." Constipation at some time in the course of the illness was complained of by 80 per cent, diarrhea by 47 per cent. The percentages of other significant clinical observations were: stools of small caliber, 95; palpable colon, 88; pain on defecation, 81; pain related to food ingestion, 71; mucoid stools, 58; tensional headache, 66; dermatographia, 60; excess catharsis, 37, and needless surgery, 31. A number of conditioning factors seem to play a part in the production of its symptoms. Among them are direct irritants (rough foods, enemas, cathartics and infections of the colon), instability of the autonomic nervous system, general infectious diseases, sudden weight loss and physical "softness," specific food allergy and emotional tension. From the psychologic study of 57 patients the authors find that in most instances mucous colitis appears to be a somatic response to a type of nervous tension. Mental states conducive to this response appear to be anxiety, resentment and guilt. Associated depressive, neurasthenic and hypochondriac features are often present, but no one psychiatric diagnosis is predominant. A rigid type of thinking, similar to that seen in obsessive-compulsive states, is present in 50 per cent of the cases and may play a part in prolonging periods of tension. Symptoms of mucous colitis appear to represent a clear-cut somatic response to tension and not to be psychologically determined and obviously gainful, such as those seen in hysteria.

Tuberculosis in Nurses.—Myers and his colleagues present the observations begun in 1929 among student and graduate nurses in four schools on entrance and throughout their course of training, using college of education students as a control group. School 2 had no tuberculosis service and of 120 students under observation 18 were tuberculin reactors on entrance; 35 became reactors while in school, and 67 graduated as non-reactors. In 2 of the 18 who entered as reactors, pulmonary tuberculosis developed while in school; 1 of the 35 who later

reacted had a primary focus in the lung parenchyma demonstrated on roentgen examination. School 3 had no tuberculosis service, and here 204 students were observed; 50 were reactors on entrance, 43 became reactors while in school and 111 were graduated as nonreactors. In none of the reactors on entrance did demonstrable lesions develop while in school. Of those who became reactors, a primary focus in the lung demonstrable on the roentgenogram developed in 1 and bilateral clinical disease developed in 1 more than eighteen months after she was known to be a reactor. School 4 required a six weeks tuberculosis service of each student. Of 550 observed, 165 reacted on entrance, 204 became reactors while in school and 181 graduated as nonreactors. Of the 165 who entered as reactors, demonstrable lesions developed in 4 while in school and in 2 after graduation. Of the 204 who became reactors as students, lesions demonstrable on roentgen study or otherwise developed in 19 while in school and in 5 after graduation. In school 1 there was a twelve weeks tuberculosis service during the first part of the study, and of the 226 students observed 48 reacted on entrance, 137 became reactors while in school and 41 graduated as nonreactors. Of the reactors on entrance, lesions demonstrable on roentgen study or otherwise developed in 2 while in school or after graduation. Of those who became reactors, demonstrable lesions developed in 14 in school or after graduation. A questionnaire to schools 2, 3 and 4 in 1938 revealed that some of the nonreactors on graduation had since become infected and lesions demonstrable on roentgen study or by other methods had developed in a few. The authors believe that every reactor to tuberculin has one or more primary tuberculosis complexes in the body. In their group the number in whom lesions demonstrable on roentgen or other study have developed or who have become ill from tuberculosis is sufficiently large to make the problem a serious one. Of the students entering the college of education 24.8 per cent reacted to tuberculin, whereas on graduation 28.5 per cent reacted. Lesions which were demonstrated on roentgen examination developed in school in only 3 of 686 reactors. Obviously, the increase in the percentage of reactors depends on contact with contagious cases of tuberculosis. Throughout the study tuberculosis did not develop in a nonreactor to tuberculin. Their observation period is short for such a chronic disease, and therefore the authors think that more of the former students will fall ill from tuberculosis, especially as new cases have been reported annually. They do not believe that BCG has been proved sufficiently efficacious to solve the problem, as there is evidence of tuberculosis among some of the students so treated. In their opinion only a most rigid contagious disease technic provides a barrier and prevents the spread of tubercle bacilli from patient to student.

Archives of Internal Medicine, Chicago

66:1191-1372 (Dec.) 1940

- Experiments on Properties of Extrinsic Factor and on Reaction of Castle. P. Formijne, Amsterdam, Netherlands.—p. 1191.
- Transitory Infiltration of Lung with Eosinophilia: Löfller's Syndrome. R. Freund and S. Samuelson, Jerusalem, Palestine.—p. 1215.
- Subacute Cor Pulmonale. D. G. Mason, San Francisco.—p. 1221.
- Studies of Blood in Congestive Heart Failure, with Particular Reference to Reticulocytosis, Erythrocyte Fragility, Bilirubinemia, Urobilinogen Excretion and Changes in Blood Volume. J. V. Waller, H. L. Blumgart and Marie C. Volk, Boston.—p. 1230.
- *Comparison of Sulfathiazole and Sulfapyridine in Treatment of Pneumococcal Pneumonia. C. F. Garvin, Cleveland.—p. 1246.
- *Acacia in Treatment of Nephrotic Syndrome. A. Goudsmit Jr., Philadelphia, and M. W. Binger, Rochester, Minn.—p. 1252.
- Cerebral Abscess (Paradoxical) Accompanying Congenital Heart Disease: Report of Two Cases. I. S. Wechsler and A. Kaplan, New York.—p. 1282.
- Pneumococcal Pneumonia: Analysis of Records of 1,469 Patients Treated in Los Angeles County Hospital from 1934 Through 1938: I. Character of Pneumonia Caused by Various Types of Pneumococci; Complications; Outcome of Pneumonia in Presence of Certain Variations in the Patient and in the Course of the Disease. F. J. Moore, R. E. Thomas, M. Kistler, R. M. Ireland and V. E. Hallstone, Los Angeles.—p. 1290.
- Id.: II. Outcome and Character of Pneumonia in Presence of Associated or Concomitant Conditions. F. J. Moore, B. O. Raulston, R. E. Thomas, J. F. Maguire and G. K. Ridge, Los Angeles.—p. 1317.
- *Multiple Primary Malignant Lesions of Large Bowel. L. R. Schweiger and J. A. Barger, Rochester, Minn.—p. 1331.
- Review of Neuropsychiatry for 1940. S. Cobb, Boston.—p. 1341.

Sulfathiazole and Sulfapyridine for Pneumonia.—Garvin compares the results of sulfathiazole and sulfapyridine in the treatment of pneumococcal pneumonia; 40 patients were treated

with sulfathiazole and 62 with sulfapyridine. Five extremely ill patients of the first and 13 of the second group also received specific antipneumococcus serum. Five of the 40 patients treated with sulfathiazole died, as did 11 of those treated with sulfapyridine. Exclusive of the patients moribund on admission and who died within twenty-four hours, the corrected respective mortality is 10.3 and 8.9 per cent. The average age of the patients treated with sulfathiazole was 38.1 and of those treated with sulfapyridine 44.8 years. Treatment was begun in three and six-tenths days after the onset of the disease in the first group and in four and four-tenths days in the second group. An average of one and six-tenths lobes was involved among the patients receiving sulfathiazole and one and five-tenths lobes among those receiving sulfapyridine. There was no statistical difference between the two groups as to sex and color. There was a normal temperature within twenty-four hours among 14.3 per cent of the patients given sulfathiazole and of an additional 20 per cent within seventy-two hours. The respective figures for the other group were 13.7, 33.3 and 5.9 per cent. After the temperature had once reached normal, 71.4 and 78.4 per cent of the two respective groups of patients had a secondary rise above 99.5 F. In the majority of instances this was of no consequence. The average number of hospital days for the two groups was seventeen and four-tenths days. Two patients of the group treated with sulfathiazole had pleural effusion, 1 empyema, 1 slow resolution and 2 pulmonary abscess. Among the group treated with sulfapyridine, empyema occurred in 4, slow resolution in 1 and pulmonary abscess in 2. Sulfathiazole caused less vomiting but more crystals (61.5 as compared to 28.6 per cent) in the urine than did sulfapyridine. Otherwise toxic manifestations were not significantly different. Approximately twice as much sulfathiazole as sulfapyridine was required to maintain an average concentration of from 5 to 6 mg. of the free drug per hundred cubic centimeters of blood.

Acacia for Nephrotic Edema.—Goudsmit and Binger find that acacia can be incorporated advantageously into the regimen (salt-free, high protein diet, fluid restriction and diuretic salts) of the patient with nephrotic edema. Of 40 successive adult patients treated according to these principles, all but 4 were promptly relieved of edema. Failure of the treatment was usually due to the fact that the patient was unable to take sufficient nourishment and diuretic salts by mouth. Diuretic salts are not essential, as acacia may produce diuresis when used in conjunction with the diet. However, the best results are obtained if diuretic salts are included. Except in a few instances, mercurial diuretics can be dispensed with without sacrificing therapeutic results. Sometimes diuretics that are ineffective before treatment with acacia become effective after such treatment. Reactions after injection of acacia are infrequent and mild if care in preparation and administration is taken. The dosage in each course of treatment should be limited to from 90 to 150 Gm. divided in daily doses of 30 Gm. The acacia was usually administered as a 6 per cent solution in distilled water. Usually 500 cc. of the solution was given in one day. From forty-five to seventy-five minutes was allowed for its administration. It was given every day or on alternate days, whichever was tolerated better. As hepatic enlargement has not been observed, acacia may even be given to patients who have cirrhosis of the liver without further impairing its function. The decrease in serum proteins after injection of acacia is accounted for adequately on the basis of increase in plasma volume and concomitant dilution of its constituents. Renal insufficiency, secondary vascular disease or myocardial degeneration does not contraindicate its use. Its addition to the general regimen provides efficient results for the patient with nephrotic edema.

Multiple Primary Malignant Intestinal Lesions.—Since the report of Rankin and Barger in 1930, Schweiger and Barger collected from the records of the Mayo Clinic 23 cases of multiple primary malignant lesions of the large intestine. They divide them into two groups: those in which multiple cancers occur simultaneously (synchronous) and those which occur at different times (metachronous). Instances of multiple polyps of low malignant grades and single grossly carcinomatous lesions that were associated with single polyps of low malignant grade

were excluded. The possibility of implantation or extension from one lesion to another was precluded. The authors believe that many instances of multiple independent lesions in the intestine are probably not recognized. It is important to the patient that the physician exclude the possibility of other lesions, as some poor results after operation for cancer may be attributable to synchronous or metachronous lesions, unsuspected and therefore undiscovered. Curability by operative means will improve only as thorough diagnoses are made earlier. Only when a diagnosis of hemorrhoids is made after all other possible causes of intestinal bleeding have been excluded will the percentage of inoperable cases of cancer of the large intestine diminish. Once a patient has become the victim of such a malignant lesion he should watch for warning signs of recurring trouble. Many patients after having had a cancer of the colon removed assume erroneously that from that time forth they are immune to a similar morbid process. The pathogenesis of polyps may also explain the origin of cancer of the colon. Polyps play a role in the genesis of some cancers. The importance of a careful examination of the entire large intestine when cancer is found at any point is emphasized.

Archives of Otolaryngology, Chicago

32:1007-1138 (Dec.) 1940

- Pneumococcic Meningitis: Review of the English Literature: Report of Two Cases in Which Disease Was of Otitic Origin. G. B. Gilmore and P. Sacks, New York.—p. 1007.
Primary Malignant Tumors of Temporal Bone: Report of Case. H. B. Stokes, Omaha.—p. 1023.
Diseases of Sphenoid Sinus: Report of Case of Cyst of Sphenoid Sinus. E. B. Bitlick, New York.—p. 1031.
Psychology of Laryngeal Functions. E. Froeschels, New York.—p. 1039.
Lipoid Granulomatosis (Hand-Schüller-Christian Disease) Involving Middle Ear and Temporal Bone. H. Rosenwasser, New York.—p. 1045.
Objective Tinnitus Aurium: Report of Case. J. C. Donnelly, Philadelphia.—p. 1054.
Angioneurotic Edema of Larynx Due to Sensitivity to Chicle: Report of Case. D. I. Frank, New York.—p. 1067.

Endocrinology, Los Angeles

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- *Vaginal Smear: Basal Body Temperature Technic and Its Application to Study of Functional Sterility in Women. B. B. Rubenstein, Cleveland.—p. 843.
Action of Various Steroid Hormones on Ovary. H. Selye and S. M. Friedman, Montreal, Canada.—p. 857.
Production of Ovulation and Functional Corpora Lutea in Rabbits Before and After Transection of Hypophyseal Stalk. C. M. Brooks, S. Bojar and W. G. Beadenkopf, Baltimore.—p. 873.
Abnormal Growth in Strain of Rats Characterized by Low Fertility and High Incidence of Benign Mammary Tumors. J. M. Wolfe, Ethel Burack and A. W. Wright, Albany, N. Y.—p. 883.
Evidence for Presence of Second Mammatogenic (Lobule-Alveolar) Factor in Anterior Pituitary. J. P. Mixner, A. A. Lewis and C. W. Turner, Columbia, Mo.—p. 888.
Studies on Relationship of Sex Hormones to Infection: IV. Study of Dispersion or Concentration of India Ink in Skin by Certain Sex Hormones. D. H. Sprunt and Sara McDearman, Durham, N. C.—p. 893.
Effect of Diethyl Stilbestrol Dipropionate on Endometrial Transplants. B. B. Weinstein, J. C. Weed, C. G. Collins, F. R. Lock and J. V. Schlosser, New Orleans.—p. 903.
Difference in Action on Heart Beat Compared with That on Metabolism of Normal and Toxic Goiter Thyroids. A. E. Meyer and M. M. Thompson, Brooklyn.—p. 917.
Further Studies on Ovarian-Thyroid Relationship. T. C. Sherwood, Madison, Wis.—p. 925.
Hypophysis and Hemopoiesis. O. O. Meyer, Ethel W. Thewlis and H. P. Rusch, Madison, Wis.—p. 932.
Effect of Adrenal Cortex on Carbohydrate Metabolism. R. A. Lewis, D. Kuhlman, C. Delbue, G. F. Koepf and G. W. Thorn, Baltimore.—p. 971.
Atrophy of Adrenal Cortex Following Administration of Large Amounts of Progesterone. H. J. Clausen, Denver.—p. 989.

Vaginal Smear and Functional Sterility.—Rubenstein describes eight types of epithelial cells which most accurately reflect the gonadal hormone production in vaginal smears. The vaginal mucosa of children, old women and certain amenorrheic adult women is very thin and consists of basal layers of cells. These cells are characteristically round, somewhat larger than the large mononuclear leukocytes. In the nonpregnant woman they usually show various degrees of cornification. In the event of pregnancy the corpus luteum increases, and increasing amounts of theelin and progesterone are produced, in response to which cell types appear which may be used to diagnose preg-

nancy. Study of typical smears at various phases of the menstrual cycle shows that anovulatory cycles occur more frequently than heretofore supposed. The presence of infection or chronic irritation may invalidate the interpretation of vaginal smears and temperatures. Usually the vaginal smear and basal rectal temperature will show a discrepancy when some nongonadal influence affects one or the other; thus the combination of the two methods makes the other more reliable. The correlation between the temperature and gonad function is as follows: During the phase of follicle development and increasing theelin production, the basal rectal temperature drops progressively. The low point is reached just before ovulation, when conception is most likely. The temperature rise continues after ovulation and should exceed 0.5 F. in the first twenty-four hours and 1 F. the first week. As soon as the corpus luteum has regressed (a few days premenstrually) new follicles begin to develop. Theelin production begins again, although at a low level. Since there is now no functional corpus luteum, the temperature depressing action of theelin is again apparent. The temperature drops progressively throughout the premenstrual phase of the cycle. In the event of pregnancy, corpus luteum function persists and the postovulatory temperature rise is maintained. If temperature curves of previous cycles are available it is sometimes possible to detect a pregnancy before the period is missed, as the temperature remains high. The temperature and smear technics used together have proved to be as reliable in detecting early pregnancy as the Friedman test. By use of the smear-temperature technic it has been possible to classify three varieties of functional sterility. The commonest type of functional sterility is that in which the cycles are anovulatory, in which smears show marked desquamation characteristic of ovulation with no clear-cut and sudden rise in temperature. Instead the temperature rises gradually. In the amenorrheic anovulatory cycle there is no rise in temperature and the smears persistently show typical cells. A study of 739 cycles of 101 patients (66 of whom complained of sterility) showed that 338 seemed anovulatory; no patient was exempt from at least a single anovulatory cycle. Other causes of functional sterility are early abortion, failure of implantation and ovulation when coitus is avoided. In investigating functional sterility, attempts to determine the time of ovulation and any hormone deficiency in the preovulatory or postovulatory phase of the cycle and attempts to influence the cycle by appropriate therapy controlled by the vaginal smear-basal body temperature technic are indicated. If ovulation occurs, coitus is advised on the preovulatory and ovulatory days. If ovulation does not occur, therapy is directed to induce it. If the sterility is due to a deficiency in the corpus luteum phase of the cycle, luteinizing hormone or progesterone is indicated.

Illinois Medical Journal, Chicago

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- New Artificial Larynx with Historical Review. W. L. Hanson, East St. Louis.—p. 483.
Endocrine Studies of Patients After Subtotal Hypophysectomy. P. Starr and L. Davis, Chicago.—p. 486.
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Splenic Extract in Glaucoma: Preliminary Report. M. Goldenburg, Chicago.—p. 495.
Stomach Diverticulum: Case Report. E. H. Warszewski and H. A. Jacobson, Chicago.—p. 500.
Arthritis Treated with Comparatively Nontoxic Gold Compound: One Hundred Cases. R. E. Driscoll and D. E. Markson, Chicago.—p. 503.
Meditations on Man's Debt to Medicine. A. M. Schwitalla, St. Louis.—p. 505.
Clinical Application of Vitamin K. H. R. Butt, Rochester, Minn.—p. 509.
Otolaryngology and the Weather. N. D. Fabricant, Chicago.—p. 511.
Treatment of Acute Glomerulonephritis. H. C. Luetth, R. W. Keeton and H. F. Hailman, Chicago.—p. 515.
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Clinical Application and Results of Pyridium Therapy. J. S. Reynolds, J. L. Wilkey and J. K. L. Choy, Chicago.—p. 544.

Johns Hopkins Hospital Bulletin, Baltimore

67:377-480 (Dec.) 1940

- Relation of Diet to Occurrence of Ataxia and Degeneration in Nervous System of Pigs. M. M. Wintrobe, J. L. Miller Jr. and H. Lisco, Baltimore.—p. 377.
- Rate of Secretion of Estrogenic Hormones by Ovaries of Monkey, Macaca Rhesus. G. W. Corner, Baltimore.—p. 407.
- Hyperplastic Mammary Nodules in Castrate Female Rhesus Monkey. H. Speert, Baltimore.—p. 414.
- Toxicity, Absorption and Chemotherapeutic Activity of 2-Sulfamido-pyrimidine (Sulfadiazine). W. H. Feinstone, R. D. Williams, R. T. Wolff, Evelyn Huntington and M. L. Crossley, Stamford, Conn.—p. 427.
- March Hemoglobinuria: Case Report. A. M. Fisher and A. Bernstein, Baltimore.—p. 457.

Journal of Bacteriology, Baltimore

40:601-746 (Nov.) 1940. Partial Index

- Production of Staphylococcal Alpha-hemolysin: Role of Agar. E. P. Casman, Abington, Pa.—p. 601.
- Culture Media for Brucella. Grace P. Kerby and R. M. Calder, Houston, Texas.—p. 637.
- Nutritional Requirements of Pneumococcus: I. Growth Factors for Types I, II, V, VII, VIII. L. Rane and Y. Subbarov, Boston.—p. 695.
- Activity of Chemotherapeutic Agents. R. L. Libby, Pearl River, N. Y.—p. 733.

Journal of Lab. and Clinical Medicine, St. Louis

26:443-596 (Dec.) 1940

- Critical Histopathologic Study: Fifty Postmortem Patients with Cancer Subjected to Local or Generalized Refrigeration Compared to Similar Control Group of Thirty-Seven Nonrefrigerated Patients. M. E. Sano and L. W. Smith, Philadelphia.—p. 443.
- Development of Eosinophilia Following Liver Therapy. R. N. Allin and O. O. Meyer, Madison, Wis.—p. 457.
- Precipitin Reactions in Rheumatoid Arthritis. J. G. Bruce and Margaret Caswell, Springfield, Mass.—p. 464.
- Leukocyte Changes in Acute Peritoneal Irritation. R. E. Kaufman and F. von Saal, New York.—p. 468.
- *Effect of Belladonna on Appetite of Patients with Obesity and with Other Diseases. J. A. Greene, Iowa City.—p. 477.
- Toxic Effects of Sulfanilamide, Sulfapyridine and Rodlone in Anoxia. G. A. Emerson, D. W. Northup and E. J. Van Liere, Morgantown, W. Va.—p. 479.
- Influence of Sodium Chloride Crystallization by Cerebrospinal Fluid. S. Burack and P. B. Szanto, Kankakee, Ill.—p. 483.
- Observations on Interrelationship of Capillary, Platelet and Splenic Factors in Thrombocytopenic Purpura. R. H. E. Elliott Jr. and Mary A. Whipple, New York.—p. 489.
- Histamine Therapy in Allergy. L. D. Porch, Macon, Ga.—p. 499.
- Acid-Base Balance in Plasma and Blood Cells of Normal Nonpregnant, Pregnant and Puerperal Women. F. W. Oberst, Lexington, Ky., and E. D. Plass, Iowa City.—p. 513.
- Magnesium Content of Blood Serum and Urine. M. Bernstein and S. Simkins, Philadelphia.—p. 521.
- Influence of Glycerol on Glycemia in Normal and Diabetic Individuals. M. Wishnoffsky, A. P. Kane, W. C. Spitz, S. Michalover and C. S. Byron, Brooklyn.—p. 526.
- Guanidine-like Substances in Blood: VII. Guanidine and Other Blood Constituents in Experimental Anoxemia. J. E. Andes, E. J. Van Liere, Erlene J. Andes and P. Vaughn, Morgantown, W. Va.—p. 530.
- Comparison of Chloride Concentrations in Whole Blood and Spinal Fluid. R. S. Hubbard and G. M. Beck, Buffalo.—p. 535.

Effect of Belladonna on Appetite.—Greene observed that hunger could be controlled by belladonna and bromide or phenobarbital. He gave such medication to 39 obese patients, 5 with diabetes and overweight and 1 with chronic pyelonephritis with overweight. The medication was given the patients without their knowledge of its purpose. The appetite of 40 of the 45 patients was diminished after medication. The medication was an important factor in reducing the appetite, as 10 patients who omitted the medication of their own accord resumed it because hunger returned. The effect of the drug appears to continue indefinitely as long as the medication is continued. One of the patients with diabetes and moderate obesity is of particular interest. She was never able to control the diabetes because hunger caused her to eat between meals. Tincture of belladonna, 10 drops three times a day, before meals, eliminated this hunger and permitted the control of the diabetes. The patient with the pyelonephritis was forced to limit her activity because of the nephritis and hypertension, she began to gain weight and the administration of tincture of belladonna decreased her food intake sufficiently to stop the gain in body weight. Omission of the drug at a later date was followed by gain in body weight, and reduction again followed the administration of the drug. The cause of the

increase in appetite of patients with obesity is not known. Harrington and Newburgh have stated that many patients ingested food at frequent intervals because of nervousness or of habit. The author's observations support this contention and for this reason a mild sedative is of distinct aid in controlling the appetite of such patients. The fact that belladonna decreases appetite suggested that an alteration of the motility of the stomach or small intestine may be a contributing cause.

Journal of Urology, Baltimore

44:545-726 (Nov.) 1940

- Physical Factors Influencing the Growth of Cancer (Experimental Studies Based on Renal Adenocarcinoma in Animals). B. Lucké, Philadelphia.—p. 545.
- *Chronic Bilateral Pyelonephritis and Hypertension. W. F. Braasch and C. E. Jacobson, Rochester, Minn.—p. 571.
- *Papillary Pathology as Precursor of Primary Renal Calculus. A. Randall, Philadelphia.—p. 580.
- Prevalence and Importance of Urea-Splitting Bacterial Infections of Urinary Tract in Formation of Calculi. R. Chute and H. I. Suby, Boston.—p. 590.
- Relation of Renal Stone Formation and Recurrence to Caliceal Pathology. F. P. Twinem, New York.—p. 596.
- Role of Perirenal Insufflation in Urology. L. F. Ajamil, J. G. Romeu, J. M. Vega and J. L. Montejo, Habana, Cuba.—p. 607.
- Perirenal Air Insufflation: Aid in Urologic Diagnosis. R. A. Burhans, Lansing, Mich.—p. 618.
- Leukoplakia of Urinary Bladder: Report of Thirty-Four Clinical Cases. G. J. Thompson and J. J. Stein, Rochester, Minn.—p. 639.
- Subtotal Cystectomy in Treatment of Hunner Ulcer. A. I. Folsom, H. A. O'Brien and G. T. Caldwell, Dallas, Texas.—p. 650.
- Effect of Trasentin and Morphine on Urinary Bladder of Unanesthetized Dog. R. E. Van Duzen, D. Slaughter and I. C. Winter, Dallas, Texas.—p. 667.
- Pharmacology in Vitro of Human Vasa Deferentia and Epididymis: Question of Endocrine Control of Motility of Male Accessory Genitals. T. Martins, J. R. Valle and A. Porto, São Paulo, Brazil.—p. 682.
- Effect of *pn* on Growth of Bacteria in Urine. R. C. Yeaw, New York.—p. 699.
- Use of Sulfathiazole Before and After Urologic Operations to Prevent or Combat Infection. H. H. Young, Justina H. Hill and J. H. Semans, Baltimore.—p. 714.

Chronic Bilateral Pyelonephritis and Hypertension.

Braasch and Jacobson examined 180 patients with chronic bilateral pyelonephritis to ascertain the possible role of chronic renal infection or its associated pathologic changes on the production of hypertension. The patients were subjected to a cystoscopic examination during which pyuria from both kidneys was revealed. Urographic data of 77 per cent of the patients were available and in all of them changes in the ureter, the pelvis or calices were demonstrable. Hypertension was considered present if the systolic blood pressure exceeded 145 mm. or the diastolic 90 mm. of mercury. Values for blood urea above 40 mg. per hundred cubic centimeters were considered above normal. Hypertension was present among 47, or 26.1 per cent, of the patients. This was an increase of 6 per cent over that found among a random control group. The increase was particularly prominent among patients less than 50 years of age; the incidence was almost twice that of the control group. The incidence among patients 50 or more years of age was approximately the same for the two groups. In identical age groups the incidence of hypertension was higher among those with pyelonephritis than that of the control group. An apparent relation existed between the incidence of hypertension and the duration of symptoms of pyelonephritis; the incidence usually increased with the duration of symptoms. However, the blood pressure of some patients remained normal after a history of pyelonephritis for from fifteen to twenty years. The highest incidence of a relation between the degree of pathologic change in the kidneys and ureters, as evidenced by the degree of deformity in the urogram and the incidence of hypertension, was evidenced by patients among whom the pathologic changes were most marked. Impaired renal function does not necessarily imply hypertension, as the blood pressure was normal among more than half of such patients. However, hypertension was found twice as often with impaired renal function as with normal renal function. Approximately 75 per cent of the patients with hypertension had a systolic blood pressure of less than 180 mm. of mercury and only 4 a systolic blood pressure of more than 200 mm. Thus the hypertension of these patients is usually of a comparatively benign nature. The usual micro-

organisms of the urinary tract were found. Among patients affected with *Aerobacter aerogenes* the incidence of hypertension was 38.5 per cent; this may be significant. The hypertension occasionally observed in mild or recurrent chronic pyelonephritis in which renal function is normal but no urographic deformity exists appears to be of independent origin and may be termed "essential hypertension."

Papillary Abnormality as Precursor of Renal Calculus.—Randall presents evidence to prove that three common urinary salts (phosphates, oxalates and uric acid) crystallize into primary renal calculi on a common, simple pathologic entity. By "primary renal calculus" is meant a small renal stone wherein (by current investigative means) one recognizes nothing responsible for its origin: no stasis, infection, hypovitaminosis, hyperparathyroidism or hyperexcretory state. Urologic studies offer two facts which aid materially in reasoning into the cause of primary renal calculus. They are that a calculus is of slow growth and its characteristic location of origin is in a minor calix. These facts suggested to the author that renal calculus is essentially a symptom of some morbid pathologic change that, in its turn, was the precalcenul or initiating lesion. In searching through 1,154 necropsies for such a lesion, the deposition of calcium salts in the renal papilla was revealed. This calcium salt deposit, when intrapapillary, is an incert replacement manifestation; but in its growth and if near the surface of the papillary wall it can lose its surface covering of epithelial cells through decubitus and then be bathed in caliceal urine. This is the nidus. This calcium plaque formation has been dissected out and calcium was present in the renal papilla in 19 per cent, nitrogen in 10 per cent and carbon dioxide in 1 per cent of the cases. Phosphorus was present but difficult to estimate accurately. A study of the incidence by decades and of 65 necropsy cases, also studied by decades, in which visible calculi up to 8 mm. in size were found adherent to a renal papilla, presents definite proof of the papillary origin of a primary renal calculus. The various salts which go to make different types of renal stone can so deposit and grow into a primary renal calculus. Calculi of differing salt compositions do have their origin from such pathologic changes in the renal papilla. Calculi supposed to be associated with hyperparathyroidism, hypovitaminosis, odd forms of renal infection, cases of nephrocalcinosis and so on belong to a separate and different form of papillary pathologic change associated with tubular inspissation of salts (calcium infarction) and represent the end results of hyperexcretory states.

Maine Medical Association Journal, Portland

31:315-338 (Dec.) 1940

- Chemotherapeutic Procedures in Pneumococcal Meningitis: Fatal Case of Type XIX Pneumococcal Meningitis Treated with Sulfapyridine and Type Specific Rabbit Serum: Clinical and Postmortem Findings. C. W. Steele, J. Gottlieb and H. Brann, Lewiston.—p. 315.
Use of Intelligence Tests in Diagnosis of Psychotic Patients. Grace R. Foster, Augusta.—p. 321.
The Cross-Eyed Child—Some Important Considerations. L. H. Berrie, Houlton.—p. 325.

Medicine, Baltimore

19:441-504 (Dec.) 1940

- Mechanism of Hydrogen Transport in Animal Tissues. V. R. Potter, Madison, Wis.—p. 441.
Pathogenesis of Paroxysmal Pulmonary Edema. A. Luisada, Waltham, Mass.—p. 475.

Michigan State Medical Society Journal, Muskegon

39:905-982 (Dec.) 1940

- Seventy-Five Years of Social Contribution: Historical Review. B. R. Corbus, Grand Rapids.—p. 919.
Leukocyte Counts: Evaluation of Total, Differential and Absolute Counts. E. E. Osgood, Portland, Ore.—p. 924.
Bilateral Small Cell Carcinoma: Report of Case in Girl 15 Years Old. W. W. MacGregor and H. Small, Detroit.—p. 929.
Varicose Veins: Surgical Treatment of 100 Cases Analyzed. J. G. Stevin, Detroit.—p. 932.
Varicose Ulcers: Newer Methods of Treatment. H. C. Rees, Detroit.—p. 936.
The Eye in General Practice. E. L. Cooper, Detroit.—p. 939.
Nasal Polyposis. N. Bentley, Detroit.—p. 944.
Subacute Bacterial Endocarditis: Apparent Recovery. L. T. Colvin, Detroit.—p. 946.
Chorionepithelioma of Uterus, with Perforation and Intra-Abdominal Hemorrhage. M. R. White, Detroit.—p. 949.
Confusing Tuberculosis. C. E. Black, Lansing.—p. 952.

New England Journal of Medicine, Boston

223:917-958 (Dec. 5) 1940

- *Congenital Diaphragmatic Hernia. W. E. Ladd and R. E. Gross, Boston.—p. 917.
Indications for Gastroscopy. E. B. Benedict, Boston.—p. 925.
Pulmonary Infarction as Cause of Pneumothorax. J. H. Marks, Boston.—p. 934.
*Significance of Charcot-Leyden Crystals. J. H. Thompson and F. K. Paddock, Boston.—p. 936.
Arterial Hypertension. S. Weiss, Boston.—p. 939.

Congenital Diaphragmatic Hernia.—Ladd and Gross report 25 cases of congenital diaphragmatic hernia encountered at the Children's Hospital. The early policy was to delay operation until the child was older, and of 9 such patients 5 are dead, 3 cannot be traced and only 1 is known to be alive. Of the 16 operated on since 1930, 9 have recovered. Seven of these are less than 1 year old. The youngest patient was operated on when 40 hours old. Of the 7 deaths, 1 occurred five days after a phrenicectomy before herniorrhaphy was attempted, and 1 four days after operation, probably from pneumonia. The remaining 5 deaths were probably due to one or a combination of the following factors: failure to provide proper fluid balance, lack of positive pressure anesthesia or too tight closure of the abdominal wall. The last factor, the failure of sufficient room in the underdeveloped peritoneal cavity to receive the abdominal viscera, has been solved by closing only the abdominal skin, allowing the abdominal wall to stretch and suturing the peritoneum and the rectus muscles at a second operation in five or six days. There is sufficient evidence to confirm the futility of expectant or medical measures. The policy of waiting until the child gets older and stronger is apparently responsible for the loss of a great many lives that might have been saved by a timely operation. The authors state that on a theoretical basis an operation performed in the first forty-eight hours of life is advantageous. They have had 2 such cases. Their experience has shown that these infants stand major surgical procedures far better than at the end of a week or ten days. Within the first two days there is the advantage of dealing with the intestine before it becomes distended, with the possibility of replacing it in the abdominal cavity—which might otherwise be impossible. Pre-operative treatment consists in making certain that the infant is in a proper state of hydration and that the intestine is deflated as much as possible. The latter can be accomplished by enemas, by gastric suction and by placing the infant in a tent with a high concentration of oxygen; from 90 to 95 per cent. Roentgen examination should always supplement the history and physical examination. A roentgenogram without the use of contrast mediums will usually give all the information that is necessary and is probably safer than giving barium to the baby.

Significance of Charcot-Leyden Crystals.—Thompson and Paddock examined the finger blood of 100 routine hospital admissions in which the diseases included hypertension, chronic nephritis, heart disease, pernicious and aplastic anemia, peptic ulcer, pneumonia, carcinoma, myelogenous and lymphatic leukemia, lymphosarcoma and Hodgkin's disease. The blood in none of these showed an absolute increase of the eosinophils and neither were Charcot-Leyden crystals demonstrated. Several patients were studied more thoroughly because of their disease or because of an unusual eosinophilia. Of 5 patients with bronchial asthma, none showed crystals in the blood. One patient with chronic ulcerative colitis had typical crystals in the stools but not in the blood. Of 3 patients with chronic myelogenous leukemia, 2 showed a number of crystals in the blood. The blood of 2 patients with presumed periarteritis nodosa showed Charcot-Leyden crystals in large numbers, as did that of a patient with presumed trichinosis with a leukocyte count of 16,000 and a 20 per cent eosinophilia. The blood of horses used for producing antiserum showed little eosinophilia and no crystals. The blood of normal rabbits showed no crystals even though their neutrophilic cells have an eosinophilic cast. Of 5 guinea pigs inoculated with *Trichinella spiralis*, none showed crystals. Prostatic secretion obtained after death produced no Charcot-Leyden crystals on standing for a week. After the addition of lead acetate to a filtered alcoholic solution of the secretion, quadrilateral crystals which resembled the crystals depicted in the literature as "spermin" were found. Microscopic examination of tissues from 11 fatal cases of myelogenous and lymphatic

leukemia revealed crystals in only 1 case; they were visible in all tissues of the body and were most plentiful in the pancreas and spleen. This patient had myelogenous leukemia. Of 7 patients with ulcerative colitis from whom sections of the colon were examined after death, 1 showed a marked increase of eosinophils in the submucosa, with occasional small Charcot-Leyden crystals. Slides of the lungs from 8 fatal cases of bronchial asthma showed crystals in 1; these were found in the mucus plugging the smaller bronchioles. Charcot-Leyden crystals appeared in blood in which a high absolute eosinophilia existed. They were not demonstrable by the same technic when eosinophils were not present in abnormally high numbers. The crystals are apparently not specific for any disease. The relation of the crystals to the eosinophils in all the diseases in which they were found seems to hold true. The nature of the crystals is not known. Attempts to isolate the crystals from the blood with a variety of solutions were unsuccessful; they were either dissolved or destroyed.

Southern Surgeon, Atlanta, Ga.

9:853-922 (Dec.) 1940

- Lipoma of Colon. F. L. Barnes and J. P. Barnes, Houston, Texas.—p. 853.
Semen and Sterility. C. Rieser, Atlanta, Ga.—p. 862.
Injuries of Spine, with Special Reference to Ligamentum Flavum. W. L. Crosthwait, Waco, Texas.—p. 872.
Partial Gastrectomy for Duodenal Ulcer. R. L. Sanders, Memphis, Tenn.—p. 878.
Fractures of Hip: Four Years Experience with Moore Nails. R. C. Robertson, Chattanooga, Tenn.—p. 884.
Treatment of Cancer of Breast. T. H. Thomason, Fort Worth, Texas.—p. 900.

Texas State Journal of Medicine, Fort Worth

36:527-590 (Dec.) 1940

- Differential Diagnosis of Diseases with Hemorrhagic Manifestations. F. J. Heck, Rochester, Minn.—p. 536.
Chromaffin Cell Tumor Associated with Paroxysmal Hypertension. P. L. Allen, Weatherford.—p. 540.
Undulant Fever. L. P. Hightower, Fort Worth.—p. 542.
Theophylline and Propadrine (Padrophyll) in Treatment of Allergic Individuals. A. H. Braden, Houston.—p. 546.
Squamous Cell Carcinoma of Anorectal Region. J. G. Kerr, Dallas.—p. 548.
Hemorrhages in Late Pregnancy and Early Puerperium. J. E. Kanatser, Wichita Falls.—p. 552.
Factors Contributing to Error in Diagnosis in Gynecology. M. S. Seely, Dallas.—p. 556.
Present Status of Clinical Roentgen Therapy. R. C. Curtis, Temple.—p. 559.
Modern Mastoid Operation Performed with Electrically Driven Surgical Burs. S. Israel, Houston.—p. 563.
Vaccinia with Ocular Complications. M. P. Spearman and W. E. Vandever, El Paso.—p. 565.
Preemployment Examinations. R. Trigg, Fort Worth.—p. 566.
Pellagra—Its Economic Importance. W. A. Hutchinson, Texarkana.—p. 568.

Yale Journal of Biology and Medicine, New Haven

13:161-292 (Dec.) 1940

- *Infection with Virus of Choriomeningitis in Man. M. E. Howard, New Haven, Conn.—p. 161.
Local Ulcerating Action of Adrenalin. W. McFarland, New Haven, Conn.—p. 181.
Technic Suppressing Development of Reproductive Function and Sensitivity to Estrogen in Female Rat. J. G. Wilson, W. C. Young and J. B. Hamilton, New Haven, Conn.—p. 189.
Significance of Pain in Diseases of Female Pelvic Organs. A. H. Morse, New Haven, Conn.—p. 203.
Inhibition of Hair Growth in Dogs Receiving Estrogens. W. U. Gardner and J. DeVita, New Haven, Conn.—p. 213.
Diminishing Response of Skin to Frequently Repeated Reinfection with Invasive Bacteria. F. Duran-Reynals and E. Estrada, New Haven, Conn.—p. 217.
Therapy of Acute Staphylococcal Infection of Mice with Antitoxin and Sulfonamide Compounds. M. Tager, New Haven, Conn.—p. 237.
Preventive Medicine at the Yale University School of Medicine. J. R. Paul, New Haven, Conn.—p. 253.
*Effects of Gastrointestinal Resections in Swine on Antianemia Potency of Liver: Observations on Nature and Sources of Materials Effective in Pernicious Anemia. A. J. Geiger, L. S. Goodman and L. N. Claiborn, New Haven, Conn.—p. 259.
Relation of Estrogen to Ossification and Levels of Serum Calcium and Lipoid in the English Sparrow, *Passer Domesticus*. C. A. Pfeiffer, A. Firschbaum and W. U. Gardner, New Haven, Conn.—p. 279.

Infection with Virus of Choriomeningitis in Man.—Howard discusses diverse manifestations of 8 cases found among 33 with a variety of neurologic signs and a lymphocytic response in the spinal fluid. In 6 of the 8 the choriomeningitis virus was

isolated from the spinal fluid and after death it was found in the cerebral tissue of the remaining 2. The cases were divisible into infection without meningeal or neurologic signs, and benign lymphocytic meningitis and encephalitis, which may be mild, prolonged or fatal. The first case presented no neurologic signs and the complaint of persistent headache prompted the lumbar puncture, and the second case was a typical benign lymphocytic meningitis. The virus was isolated from these patients nine and five days, respectively, after acute onset. Encephalitis of varying severity was found in the next 4 cases. The third and fourth cases were relatively mild; recovery was fairly prompt and without sequelae. The onset was insidious in the fifth case and the course prolonged. Death was sudden in the sixth case. It occurred five months after onset, when improvement in the mental status was beginning to be noticeable. In the milder cases the virus was isolated from the spinal fluid early in the course of the disease; in the more severe and prolonged forms it was found as late as fifty-nine days after onset. Among these 6 cases the lymphocytic response in the spinal fluid was highest in the meningeal form of the disease. The cell count was within normal limits in the fifth and sixth cases; a positive Pandy or an increased protein content was demonstrable. Therefore it seems that the cell count is of no prognostic significance as to the seriousness of the disease. In neither instance of hemorrhagic encephalitis was the virus isolated from the spinal fluid. The pathologic picture in these two cases was that of widespread hemorrhagic lesions involving the subcortical white matter of the brain and cord in one and both the gray and white matter in the other. The meningeal reaction was slight and in both instances the choroid plexus was free. No inclusion bodies were found. The inoculation of fresh brain tissue into mice and guinea pigs from the seventh case failed to produce symptoms. The incubation period in the guinea pig and the chicken following inoculation with material held in glycerin for seventy days was long. This gives rise to doubt as to the validity of the observations. The later discovery that lesions were in the subcortical white matter prompted the author to try again with the small amount of remaining material. Work is now in progress to determine whether a latent or slowly developing infection in guinea pigs may be produced when the inoculating dose is small. From the data at hand this seems to be the case. A 10 per cent emulsion of brain tissue from the eighth case from the right temporal and right parietal lobes after storage in glycerin for seventy days produced fever in nine days in 1 instance and in fourteen days in 3 instances after combined intracerebral and subcutaneous inoculation into 4 guinea pigs. Death occurred eleven, twenty-three, thirty and thirty-seven days respectively after inoculation. Mice showed no evidence of infection and later succumbed to reinoculation with the Rivers W. E. strain. Failure to demonstrate neutralizing antibodies in the blood of the first and fourth patient is a source of concern, as the final proof is thereby lacking that the infection was really due to the virus of choriomeningitis. The spinal fluid of the other 25 patients, for whom a variety of diagnoses were later proved, was similarly studied and no virus was obtained. These served as controls and added to the evidence that choriomeningitis virus was not present among the stock animals in use.

Gastrointestinal Resections and Antianemia Potency of Liver.—Geiger and his co-workers tested the theory of liver storage of the antianemic principle by removing the stomachs from 7 swine and then determining whether their livers showed progressive depletion of the effective factor. The results of the experiments are summarized as follows: 1. Extirpation of the stomach in swine results in progressive depletion of the antipernicious anemia principle of the liver and complete exhaustion of liver potency within six months. This suggests that the liver stores or elaborates and stores a product furnished by the stomach. 2. Similar exhaustion is observed when the stomach is retained but isolated within the animal. This suggests that the effective factor results from gastric digestion rather than from an internal secretion of the stomach. 3. The livers of newborn pigs from a normal sow contain the anti-pernicious anemia principle, while those of newborn pigs from an agastrie sow do not. This confirms the view that the effective factor is a product of gastric digestion. 4. Extirpation of the duodenum in swine diminishes the liver's content of the principle, which indicates that the duodenum is a true source of Castle's intrinsic factor.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:657-692 (Nov. 16) 1940

Today and Tomorrow. J. A. Ryle.—p. 657.

*Pathogenesis of Nonpulmonary Tuberculosis. M. C. Wilkinson.—p. 660.

Stab Wounds of Chest. T. Schrire.—p. 662.

Atropine Poisoning: Description of Unusual Case. A. B. Carter.—p. 664.

*Perforated Peptic Ulcer: Review of 175 Personal Cases. J. C. Ross.—p. 665.

Amnioplastin: A Warning. W. Penfield.—p. 668.

Pathogenesis of Nonpulmonary Tuberculosis.—Wilkinson discusses the relation between tuberculosis of the lymph nodes and hematogenic tuberculosis. He bases his remarks on the data obtained from 593 persons with nonpulmonary forms of the disease who between 1930 and 1937 were admitted to the Essex County Council Sanatorium, Black Notley. Skeletal tuberculosis was the most common form of nonpulmonary tuberculosis at all ages, renal tuberculosis developed most often in young men, tuberculous peritonitis was more common in female than in male patients and was most frequent in adolescence, and the majority of patients with lymphatic tuberculosis were children. Patients admitted with tuberculosis of the thoracic nodes are not included in the series. Nonpulmonary hematogenic tuberculosis or tuberculous bacillæmia was found to be evenly distributed, that is bilateral. Twenty-two of the 28 patients with renal tuberculosis had a complete examination and showed evidence of bilateral infection. Similarly tuberculous epididymitis was found to be bilateral in most patients, although it was not always manifest simultaneously in both epididymides. Nine of 13 patients suffering from tuberculous salpingitis were known to have bilateral disease. The author states that tuberculous peritonitis may occur as a direct extension from tuberculous abdominal nodes, but in his opinion it occurs more commonly as a hematogenic tuberculous infection or as an ascending peritonitis from tuberculous fallopian tubes. When the infection is hematogenic, miliary tubercle along the blood vessels may be seen at operation. Tuberculous pleurisy is a commonly associated lesion. It occurred in 6 of his patients. Of the patients with tuberculosis of the lymph nodes, 119 were admitted for tuberculous cervical adenitis and 40 for tuberculous abdominal nodes. No associated tuberculous lesions were found. Follow-up reports of 81 were received from a few months to seven years after discharge, and in no case had a fresh tuberculous lesion developed in another part of the body. The results of examination for evidence of past or present glandular tuberculosis in 134 patients suffering from skeletal, peritoneal or genito-urinary tuberculosis (diagnosed by roentgen evidence of calcification in the chest or abdomen) show no evidence of tuberculosis of the cervical glands; neither was there any gross evidence of past or present glandular tuberculosis. However, this does not mean that the patients did not suffer from some degree of lymphatic tuberculosis at the time of their primary infection, as in some patients the glandular tuberculosis may have subsided before the roentgenogram was taken or enough time may not have elapsed for calcifications to develop. The study shows that conversely patients with hematogenic tuberculous lesions do not necessarily show evidence of previous gross glandular tuberculosis. Therefore it may be inferred that gross glandular tuberculosis is not necessarily associated with severe tuberculous bacillæmia and may, on the contrary, be a means by which severe hematogenic tuberculous infection is prevented. It appears that the severity of hematogenic tuberculous infection is not proportional to the severity of glandular tuberculosis and that hematogenic tuberculous lesions are not likely to appear if the glandular tuberculous lesion following primary infection is treated by constitutional measures. Under favorable conditions the lymphatic system may afford some protection against the entrance of tubercle bacilli into the blood stream. Not only may the cervical, thoracic and abdominal nodes be a barrier to the blood stream entrance of tubercle bacilli from the site of primary infection, but the regional glands may exert the same function. The disastrous effects of tuberculous infection in infants are to some extent modified if the lymphoid tissue is well developed and if the child's environment and nutrition are good.

Perforated Peptic Ulcer.—Ross presents the follow-up data of 89 out of a personal series of 175 cases of perforated ulcer observed by him during 1930 to 1940. Fifty-one of the 89 patients have no symptoms and are following their previous vocation, 28 have trivial or occasional mild symptoms causing no inconvenience or loss of time from work and 10 have symptoms that are severe enough to cause absence from work. The follow-up suggests that, provided the patient adheres to a strict dietary for six months after operation and maintains dietetic care thereafter, his prospects are good. However, many symptom-free patients stated that they were taking no dietetic precautions. The patient's occupation often gives rise to difficulties, as lorry drivers, bus drivers, tram conductors and the like have not the same dietetic facilities as persons in other trades. In assessing the immediate outlook the number of hours between the perforation and operation is the most important single factor. Among the 175 cases there were 28 (16 per cent) deaths; in 19 of these the delay ranged from three hours to seven days; the average was twenty-five and a half hours. If 2 cases delayed for five and seven days respectively are excluded, the average period between perforation and operation among fatal cases was ten and four-tenths hours. The remaining 9 cases were simply described as "late." The site of the ulcer is another important factor; the perforated gastric ulcer is regarded as having a somewhat worse prognosis. The prognosis for duodenal, pyloric and juxtapyloric ulcers appears to be identical. While it has been generally recognized that perforation and hematemesis are usually fatal, it has been overlooked that any intercurrent disease renders the prognosis infinitely worse, irrespective of the two foregoing factors. In the author's series, among the deaths, it was established that before operation 6 patients had had angina, chronic myocarditis or auricular fibrillation, 2 chronic bronchitis, 3 diabetes mellitus, 1 chronic nephritis, 1 exophthalmic goiter and 1 syphilis. Thus in 50 per cent of the fatalities an intercurrent disease was present. The most dangerous period appears to be three or four days after the operation, death being probably due to peritonitis and toxemia. The operation should consist of simple closure of the perforation and removal of the peritoneal fluid, together with drainage through a suprapubic stab incision when the fluid is thick, and in late cases. Gastro-enterostomy at the original operation is contraindicated because the operation is unjustifiably lengthened; the perforated ulcer may be of the "acute" type and, should a subsequent operation become necessary, a gastroenterostomy is rarely the wisest and most efficacious procedure.

Medical Journal of Australia, Sydney

2:423-452 (Nov. 2) 1940

Acute Rheumatism. L. Hughes.—p. 423.

Radical Operation for Cancer of Breast Under Local Anesthesia, with

Account of Technique: Fifty-Five Cases. C. E. Corlette.—p. 427.

Pink Disease: Consideration of Three Etiologic Possibilities. F. W.

Clements.—p. 430.

Inquests and Experiences in the Coroner's Court. J. B. Cleland.—

p. 433.

Gas Tensions in Tissues of Normal Resting Subjects. E. W. Sibree.—

p. 436.

2:453-486 (Nov. 9) 1940

Problems Relating to Supply of Medical Equipment. A. Newton.—p. 453.

Injuries of Flexor Tendons of Hand. L. O. Betts.—p. 457.

Delayed Union in Fractures. F. H. M. Callow.—p. 460.

Shoes as a Deforming Influence on Feet. A. R. Hamilton.—p. 462.

Treatment of Late Contractures Resulting from Erb's Palsy.

A. Meehan.—p. 464.

Hoke Operation for Stabilization of Feet in Poliomyelitis. Elizabeth

McComas.—p. 465.

Para-Articular Calcification of Shoulder: Survey. L. Macdonald.—p. 467.

2:487-520 (Nov. 16) 1940

Some Aspects of Pertussis Immunization. Dorothy Gepp.—p. 487.

Irrational Medical Practice. H. Priestley.—p. 489.

Simplified Blood Transfusion Technique with Controlled Positive Pressure

and Automatic Blood Agitator. E. H. Hipsley.—p. 492.

New Diagnostic Method: Manipulation of Hypersensitive Visceral

Reflex as Clue to More Exact Diagnosis. F. Trinca.—p. 493.

Function in Relation to Alinement in Treatment of Fractures. S.

Scougall.—p. 496.

Notes on Pregnancy and Parturition in D'Entrecasteaux Islands.

E. Ford.—p. 498.

Hematuria: Diagnosis and Treatment. R. G. S. Harris.—p. 501.

Presse Médicale, Paris

48:737-760 (Sept. 18-21) 1940

- *Treatment of Penetrating Wounds of Thorax. R. Monod.—p. 737.
Haemophilus Influenzae Meningitis. C. Gernez and C. Huriez.—p. 740.
*Present Day Foundations for the Treatment of Bronchiectasis. P. Santy and M. Latarjet.—p. 743.
Galvanotherapy in Poliomyelitis. H. Bordier.—p. 746.

Penetrating Wounds of Thorax.—Monod discusses treatment of pleuropulmonary uncomplicated wounds of average gravity. These constitute 30 per cent of all chest wounds incurred in war. He classifies three types and indicates the nature of the intervention: (1) lesions accompanied by serious hemorrhage; (2) lesions presenting the risk of infection due to presence of shell or bomb fragments and (3) uncomplicated cases. If in spite of sedative medication and immobilization a progressive aggravation is observed, intervention is indicated. Open chest wounds can be enlarged to determine the source of the hemorrhage. In closed chest wounds or those presenting small perforations, whether thoracic or extrathoracic, a wide exploratory thoracotomy is in order. Hundreds of cases of the second type proved at necropsy that enclosed shell or bomb fragments presented a serious risk of infection. In the determination of the operative procedure, great importance is attached to the embedded foreign body itself, to roentgen ray evidence and to presence of costal and scapular fractures. Wide thoracotomy is to be performed, especially if fragments are lodged juxtapleurally and fractures are involved. In uncomplicated cases thoracotomy is delayed and watchful observation is practiced. Excision of the parietal wall wound is always to be made no matter how insignificant the cutaneous lesion may be for a great deal of muscular damage may be concealed. Respiratory disorders need to be noted, frequent bacteriologic tests made and drainage promptly applied. Pleural infection may occur in the absence of a hemothorax. High initial pyrexia has a tendency to fall spontaneously. Men with thoracic lesions should be assigned to a special service division where they may receive further care for empyema and where secondary removal of foreign bodies may be performed. Evacuation should not be attempted until the end of the second week. The author cautions that a badly supervised empyema will lead to pleural fistula and a chronic condition which necessitates serious surgical intervention. He stresses the fact that thoracic wounds require medical care until the wound has completely healed.

Treatment of Bronchiectasis.—According to Santy and Latarjet, a study of the recent, especially the English and American, literature discloses the progressively favorable results, immediate and late, obtained by lobectomy and pneumonectomy in bronchiectasis. The prognosis, the value of conservative preoperative treatment, the indications and the contraindications for surgical intervention are increasingly better understood. Spontaneous recovery, under conservative management, can be expected only in "dry" cylindric cases of bronchiectasis resulting from a previous infection. Some "dry" hemoptysic cases in which roentgenograms taken with a radiopaque substance (iodized oil) and the endoscope reveal lesions need promptly to be surgically treated. In spite of their apparent benignity, these cases invite new hemorrhages and secondary infection of the cavities. The essential service of conservative therapy, working with appropriate clinical and laboratory controls, lies in conditioning the infected patient for the operative act. The mortality incidence for partial pulmonary extirpations extending over ten years amounted to 10 per cent of the cases treated. Subsequent series have been without a single fatality in the experience of some authors. The mortality rate for total extirpation was from 18 to 20 per cent. Children were observed to tolerate both operations better than adults. In 166 cases of lobectomy, cited from Tudor Edwards, involving 38 children aged from 4 to 16 years, there were no deaths (0.0 per cent). In 16 adults aged from 40 to 50, there were five deaths (31 per cent). In a summary of 239 cases (lobectomy and pneumonectomy) collected from different authors, 172 were completely restored functionally and anatomically (70 per cent) and good results were obtained in patients restored to normal living but requiring subsequent medical attention. In the latter group the roentgenogram was either unable to detect residuary lesions or iodized oil pene-

tration was insufficient, especially in the lingular process of the left upper lobe. The authors discuss the value of postural drainage, the indications for one stage and two stage interventions (preoperative artificial creation of adhesions), the value of early diagnosis and the need of complete radiopaque delineation of the whole bronchial tree in both lungs. Localized bronchiectasis will yield only to surgery. Mortality resulting from pulmonary exeresis is chiefly due to infectious complications.

Anais Brasileiros de Ginecologia, Rio de Janeiro

10:391-470 (Nov.) 1940. Partial Index

- *Germ Cell Damage from Roentgen Irradiation. C. Salgado and J. Ferolla.—p. 391.
Hormone Therapy in Gynecology: Some Aspects. F. V. Rodrigues.—p. 418.

Germ Cell Damage from Roentgen Irradiations.—Salgado and Ferolla review the literature on the clinical application of gynecologic roentgen irradiation and the possibility that the latter may cause harm to germ cells. They refer particularly to the work of Muller, which proved the existence of roentgenologic changes in "Drosophila melanogaster." The changes attributed to roentgen irradiation correspond to a condition defined as early germ cell damage. A late genetic damage has not been proved so far. Its demonstration would interdict gynecologic irradiation, but this does not seem to be the case. The authors irradiated the lumbar region of rats with doses of from 2.4 to 5.6 roentgens. Sixteen days later the animals were given to the males. The first generation consisted of 52 animals, all normal in appearance, conformation of the eyes, development of the body and behavior. The rate of mortality in the animals was the same as in the offspring of nonirradiated animals. By the end of the experiment a total number of 118 adult rats from the irradiated original ancestors were obtained in five consecutive generations. Through the generations all the animals were normal in all respects and procreated by endogamy.

Revista Mensual de Medicina, Mexico City

2:89-116 (Oct. 15) 1940. Partial Index

- Treatment of So-Called Prostatic Adenoma. A. Madrid.—p. 89.
*Poisoning with Barbituric Acid Compounds. R. Leñero.—p. 97.

Strychnine in Poisoning with Barbituric Acid Compounds.—Leñero reports encouraging results from large doses of strychnine in more than 100 cases of acute poisoning with barbiturates. The treatment should be commenced as early as possible in doses of 200 mg. for the first two hours, up to a total of 1,300 mg. for the first twenty-four hours. The drug is administered intravenously in isotonic dextrose solution. The acuteness of the condition when the victim is first seen, age, abnormalities of the viscera, pregnancy and the presence of associated poisoning do not contraindicate its use. The degree of saturation with the drug in the course of treatment is appreciated by the Chvostek sign. The author concludes that strychnine in large doses should be resorted to immediately in cases of barbituric coma, as well as in accidents during administration of evipal soluble and similar barbituric anesthetics.

Deutsche medizinische Wochenschrift, Leipzig

66:981-1008 (Sept. 6) 1940. Partial Index

- Prognosis in Disturbances of Internal Secretion. H. Marx.—p. 983.
Prognosis of Pernicious Anemia. H. Schulten.—p. 986.
*So-Called Irritable Soldier's Heart. D. Thomas.—p. 989.
Clinical Significance of Sternal Puncture. S. Thaddeus.—p. 992.

Irritable Soldier's Heart.—Thomas points out that a healthy person experiences dyspnea during physical exertion which persists for varying periods. After long and severe exertions, signs of exhaustion appear in the form of tremor, weakness and later of fatigue and pain. Pulse rate and blood pressure are increased, respiration is accelerated, the apex beat is often prolonged and forceful, and systolic murmurs are frequent. These are signs of the physiologic effort syndrome. This syndrome develops more readily in weak persons than in the average person. It is frequent in young soldiers but is not a specific soldier's disease. The so-called irritable soldier's heart is one of the ordinary chronic defects of city dwellers who lead sedentary lives. It is erroneous to designate this defect as

heart disease. The majority of such persons are emaciated and have weak muscles and a long and narrow chest. Some are nervous as indicated by the ease with which their emotional reactions are elicited. The author examined functional capacity of the heart of men with so-called soldier's heart by means of Rein's basal metabolism recorder. He found that men with soldier's heart differ from normal men by a lesser utilization of the ventilation oxygen, great alterations in the respiratory volume, prolongation of recovery time for respiration and slight utilization of oxygen. It is difficult to estimate the functional capacity of the so-called soldier's heart. Many of these men are weak and incapable of great physical exertion. The history often reveals that during the years of growth they had been excused from physical exercises partly because they failed in great exertions and partly because a systolic murmur had been regarded by the physician as indicative of heart disease. This classification as a sufferer from heart disease had an unfavorable psychologic effect. It is a mistake to keep these men away from all physical exertion. Cautious and gradually increasing physical exertion often accomplishes good results. These persons should not exert themselves to a point at which they feel exhausted, but long enough for the respiration to become noticeably accelerated and deepened. The author found that men in whom signs of soldier's heart are mild or moderate can be developed into capable soldiers.

66:1037-1064 (Sept. 20) 1940. Partial Index

- *Prognosis of Obesity. E. Grafe.—p. 1037.
Therapeutic Results with Sulfanilamide Pyridine in Epidemic Meningitis. G. Säker.—p. 1039.
Goiter and Treatment of Hyperthyroidism, Inclusive of Toxic Goiter. W. May.—p. 1042.
Qualification for Service in the Tropics. P. Mühlens.—p. 1045.
General Surgery in the Tropics. E. Gminder.—p. 1046.
Therapeutic Efficiency of Dioxidethyl Stilbene. E. Keeser.—p. 1049.

Prognosis of Obesity.—Grafe cites statistics which indicate that life expectancy of obese persons is less than that of persons of normal weight. This should be impressed on obese persons in order to give them the will necessary for the effective treatment. If the age of 40 is taken as the starting point, the chances to reach the age of 80 are only one third as favorable in the obese as in those of normal weight. Obese octogenarians are a great rarity. It is necessary to differentiate between what is theoretically attainable and what can be accomplished in view of human shortcomings. Theoretically obesity is curable, even in the severe cases, as far as no irreversible changes have yet developed. Obesity develops as the result of a positive energy and water balance and it can be counteracted only if these balances are negative for a long time. The dietetic treatment is most important; the nutrition must be subnormal in calories. In the beginning it should provide 30 per cent of the requirements and less and should gradually be increased to from 50 to 75 per cent. Many begin with a fasting cure. The author usually begins the reducing treatment with a fast of several days' duration, but he thinks that it is never necessary to continue this fast for two or three weeks. Whether to extend the days of fasting depends chiefly on how the patient reacts to hunger and what his mental attitude is. There are no strict contraindications, but no patient should ever be forced to fast. In prescribing a diet it is essential that the patient be given exact quantitative regulations with careful computation of calories, and the patient must carefully weigh all the food. The fluid and sodium chloride intake must also be carefully controlled, because the adipose patient is not only lipophil but also hydrophil. The total fluid intake should not exceed 0.75 liter and the salt content must be reduced to the point at which the food remains just eatable. Medicinal therapy is necessary in some cases. Salyrgan is helpful in counteracting the hydrophilia of the obese person. The diuretic effort can be intensified by acidification of the organism with ammonium chloride. In severe cases of obesity, particularly in those in which endogenic or constitutional factors are involved, thyroid preparation can be given. Contraindications to this treatment are severe organic cardiac defects, glycosuria and diabetes. There are hopelessly careless obese persons who lack the will power for effective treatment, but there is no incurable obesity. There are patients who, in spite of rigorous dieting, do not lose much. These patients lose

fat, but they retain water, so that the weight remains unchanged for days or weeks. However, later this water is eliminated either spontaneously or with the aid of diuretics.

Fortschritte a. d. Gebiete der Röntgenstrahlen, Leipzig 62:67-144 (Aug.) 1940

- Variations and Defective Formations in Structure of Osseous Thorax. L. Siehr.—p. 67.
Depression of Esophagus Caused by Arteria Subclavia Dextra That Originated on Left Side. M. Dahm.—p. 108.
*Has Roentgenologic Diagnosis Improved the Therapeutic Results in Gastric Cancer? H. Bade.—p. 114.
Increase in Conduction Capacity of Water by Action of Roentgen Rays. R. Reiter.—p. 122.

Roentgenologic Diagnosis of Gastric Cancer.—Bade studied 107 patients with gastric cancer in order to determine whether the improvement in roentgenoscopy produced better therapeutic results. He chose patients under 40 because of a greater possibility of error among younger patients. He found that there was no increase in the number of operable cases despite the fact that 75 per cent of patients with gastric carcinoma have a long history of gastric disorders. An early roentgenologic examination by one experienced in this technic is of great importance. Control examinations to check negative results are necessary but are rarely carried out. There is danger of erroneously diagnosing cancer as ulcer, for their roentgenologic differentiation is often impossible. The differentiation may be impossible even at operation. It is advisable for this reason to resort to resection if the niche fails to decrease on a dietetic regimen. Tumors which appear benign in the roentgenogram should be operated on, because of the possibility of differentiating with certainty benign from malignant tumors. A roentgenologically detected ulcer subjected to dietetic treatment requires control examinations. Should the niche fail to decrease, gastric ulcer in contradistinction to duodenal ulcer should be resected early. A carcinoma may exist even if the niche decreases and the patient is free from complaints. The author observed one such case. The author is convinced that the extremely unfavorable therapeutic results can be improved if polyps and other benign tumors are accepted as an indication for an operation.

Kinderärztliche Praxis, Leipzig

11:277-316 (Sept.) 1940. Partial Index

- Increase of Nubecula as Precursor of Perforation of an Abscess into the Bladder. K. Stolte.—p. 277.
*Fever Therapy of Poliomyelitis. H. Kohl.—p. 278.
*Congenital Tuberculosis. E. Keyser.—p. 284.

Fever Therapy of Poliomyelitis.—Kohl subjected in 1936 2 children with poliomyelitis to two series of fever treatments, the fever being induced by a bacterial protein preparation. The results of this form of fever therapy proved unsatisfactory. He treated 8 children with poliomyelitis with malaria. The fever treatments with the bacterial protein had been given two and three months after the onset of the poliomyelitis, and the malaria therapy from three to six weeks after the onset. In spite of the earlier treatment, however, the results were not encouraging. The author gained the impression that the same improvement in motion might have been obtained with the measures customarily employed at the Leipzig clinic. He reports histories of children subjected to malaria treatment and shows that at most in 3 cases a slight improvement might have been due to the fever therapy.

Congenital Tuberculosis.—Among 79 tuberculous nurslings Keyser observed 1 in whom the disease was definitely congenital. This child was born to a mother who had a productive, infiltrative pulmonary and laryngeal tuberculosis and who died from tuberculosis one month after the birth of the child. The infant had been removed from the mother immediately after birth and was cared for in an environment free from tuberculosis. The child developed normally the first three weeks after birth, at which time fever and nutritional disturbances appeared. Roentgen examination revealed a bilateral, coarsely nodular pulmonary tuberculosis, and the gastric juice contained tubercle bacilli. The child died on the thirty-fourth day of life, and the necropsy disclosed a bilateral, caseous, nodular pulmonary tuberculosis with involvement of the hilar

lymph nodes. The history and anatomic features of the case indicate a congenital or at least congenital character of the infection. The anatomic picture was typical for cases of this type when compared with the 5 cases reported in the literature. All these infants had a disseminated, nodular pulmonary tuberculosis. In all of the cases the primary focus could not be demonstrated. The author assumes that this disseminated nodular pulmonary tuberculosis of the first two months of life, in which it is impossible to find a primary focus, represents a primary colonization of tubercle bacilli which can take place only by way of the bloodstream or by the aspiration of amniotic fluid containing tubercle bacilli.

Medizinische Klinik, Berlin

36:855-882 (Aug. 2) 1940. Partial Index

- Bacterial Food Infections. K. Beckmann.—p. 855.
Injuries Produced by Chemical Warfare and Their Treatment. O. Hoche.—p. 857.
Preparation for Ambulatory Insulin Therapy. H. Malten.—p. 860.
Combat of Rickets. E. Türk.—p. 862.
Rheumatic Articular Disease and Trauma. G. Jorns.—p. 865.

Rheumatic Articular Disease and Trauma.—Jorns points out that rheumatic changes in one or several joints are sometimes ascribed to accidental injuries. The assertion is often based on mere conjecture. The author presents a survey which indicates the deviousness of the attempts to deduce from the presence of a locus minoris resistentiae supposedly produced by a trauma, and the possibility that pathogenic organisms circulate in the blood. He thinks that it is more feasible to accept individually differing association rather than generally applicable relations. The factors leading to the development of pyogenic metastases should be looked for not only in the type of the pathogenic organism but also in the patient's body and here less in the local tissue injury than in the general status of susceptibility. In view of the predisposition of rheumatic infections for the joints, the action of a preceding trauma can be regarded as dispensable. Moreover, it would have to be explained in what manner the traumatic injury produces the prerequisites for the development of rheumatic articular changes. This question is pertinent in view of the fact that the morphologic aspects of rheumatic polyarthritis are such that the association of trauma can be dispensed with. Before more is known about the cause of rheumatic infection, caution is necessary in the evaluation of a possible connection between trauma and articular rheumatism. A causal connection can be accepted only if the following prerequisites are fulfilled: 1. The rheumatic process must develop in the injured joint. 2. Considerable force must have been exerted. 3. The rheumatic lesion must correspond with the trauma in location as well as in time. The author points out that if trauma and infectious rheumatic process concur there is the danger that the direct results of the trauma are regarded as rheumatic and are treated incorrectly.

Medizinische Welt, Berlin

14:397-420 (April 20) 1940

- Tuberculosis of the Larynx. H. Alexander.—p. 397.
Diagnostic Errors and Curiosities in Tuberculosis Clinic. F. Lommel.—p. 401.
Conservative Obliteration of Varicose Veins or Surgical Procedure? J. Neideck.—p. 403.

Conservative Treatment of Varices.—Neideck recommends sodium chloride injections in the treatment of varicose veins. The technic consists in injecting not more than 20 cc. in toto of a sodium chloride solution (1:3 concentration) into varices at intervals of three days. Puncturing is done distally, slowly proceeding in an upward direction, with the patient in a sitting position. Troublesome phlebitis can be prevented by the utmost cleanliness in the instruments and in disinfection of the skin. Venous impermeability, damaged renal parenchyma, staphylococcosis and the presence of febrile disease or of a thrombophlebitis are contraindications. In pregnancy, a gynecologic examination should be made first. Reactions to injections vary from case to case, since the destruction of the varicose channels is not always the same. The danger of paravenous infiltration may be met by promptly injecting from 10 to 20 cc. of the patient's cubital venous blood into the endangered tissue area or by a saline solution. The author believes that the conservative treatment of varices does not yet enjoy the consideration which it deserves.

14:1061-1084 (Oct. 19) 1940

- *Theory and Practice in Chemotherapy of Gonorrhea. H. T. Schreus.—p. 1061.
*Roentgen Therapy in Dementia Paralytica and Tabes. F. Bering.—p. 1066.
Things to Be Observed by the Practical Physician in Examination of Gastrointestinal Diseases. R. Kühn.—p. 1068.

Chemotherapy in Gonorrhea.—Schreus discusses the use of various sulfonamide preparations in gonorrhea, the dosage, prevention of relapses and sequels. Nothing is gained by including hours of the night into a therapeutic program which provides for three to four single daily doses. Concentrated doses given orally for three to five days are sufficient to produce a cure, if a cure is possible. Cases which respond slowly to drug action, though negative after long-continued medication, are often liable to relapses in the end. Massive doses given over a shorter period of time are better tolerated than those of lower concentration administered for a longer time. Drug treatment, routinely continued for prophylactic purposes after the patient has been demonstrated to be gonococcus negative, is unnecessary and harmful. Optimal dosage is regarded as consisting in the compatibility of high concentration levels with the ability of the patient to tolerate them. Actual cure is determined by the absence of the micro-organism in cultural assays. In addition, two provocative tests are applied, one immediately after the conclusion of the treatment, the other a week later, and the patient is kept under clinical and laboratory observation for two weeks longer. To induce abundant urinary excretion, compound solution of iodine in a 1:6 concentration was found effective. A refractory tendency to sulfonamide therapy in primary gonorrheal infection is now met by vaccination or by nonspecific stimulation ten days before the drug treatments are begun. Sequels were few and negligible. Hepatic damage, originally observed in a few cases, in subsequent investigations was no longer determinable by relevant laboratory examinations. Cyanosis was not equally induced by the various preparations and is possibly due to the aniline element in the sulfonamides. It readily yields to methylthionine chloride. Chemotherapeutically stubborn cases were often seen to react remarkably well to local treatment when local treatment was applied concomitantly or soon after the termination of the other treatment.

Roentgen Therapy in Dementia Paralytica and Tabes.

—Bering summarizes two years of observations of the value of roentgen therapy in dementia paralytica and tabes, based on 130 cases. Cranial application of irradiation to patients with dementia paralytica was suggested by the favorable results obtained roentgenologically on abscesses of the axillary apocrine glands. The case material consisted of persons in whom malarial therapy was either contraindicated or had to be discontinued because of cardiac disorders or had left sequels such as headache, malaise and lassitude. The efficacy of roentgens is conditioned on the extent to which anatomic changes, both inflammatory and degenerative, have taken place in the brain. These cannot always be determined. The meninges are more or less strongly indurated. The radiosensitive endothelial cells show proliferation and edema in the vessels of the cerebral cortex and in the larger vessels. All portions of the brain are pathologically affected; the frontal most, the occipital least. The particular considerations entering into the management of each case are governed by the clinical and cerebrospinal fluid observations. No definite conclusions can yet be formulated regarding the usefulness of roentgen therapy in dementia paralytica. In a number of cases subjective and objective amelioration was achieved which still persisted after eight months. In general, irradiation was found to have an effect on the clinical manifestations of dementia paralytica, especially in incipient stages, and on the cerebrospinal fluid comparable, at least, with that of malarial therapy and hence applicable in cases in which the latter treatment is not permitted. Moreover, its action was more prompt. Lymphocytes in the spinal fluid were observed to decrease rapidly. The patients often gained weight. Often headaches and malaise were cleared up and the memory was seen to improve, the roentgens thus favorably influencing inflammatory sites that had not responded well to malarial therapy. Roentgen action on the frontal lobes not infrequently clarified the mind, increased the appetite and stimulated the desire to

work, as the result, no doubt, of the favorable effect on the augmented endothelial cells of the endarteritic processes. Roentgen therapy is not intended to replace malarial therapy. Best results are obtained in early diagnosis. There are no contra-indications to the treatments. Outpatient service does not interfere with the economic life of the patient. A temporary complete loss of hair must be reckoned with. Roentgen therapy for tabes was not encouraging, though some favorable results were achieved.

Münchener medizinische Wochenschrift, Munich

87:985-1016 (Sept. 13) 1940. Partial Index

- Mental Disturbances After Gunshot Wounds of Brain. A. Bostroem. p. 985.
 *Early Diagnosis of Carcinoma of Colon and Timely Surgical Treatment. U. Graff.—p. 988.
 Case of Pernicious Anemia Refractory to Liver Therapy. A. Bingel.—p. 993.
 New Points of View on Problem of Prolonged Pregnancy. E. Tschernie and E. Engelhart.—p. 996.
 Clinical Aspects of Perthes' Disease. E. Schrader.—p. 999.
 Favorable Modification of Diabetes Mellitus in Acromegaly by Irradiation of Hypophysis with Some Observations on Hypophysectomized Dogs. J. Bauer.—p. 1002.

Early Diagnosis and Treatment of Carcinoma of Colon.

—According to Graff the unusually frequent concurrence of polyps and carcinoma of the colon is significant and necessitates careful examination and continued observation. Polyposis is often hereditary and the carcinomatous degeneration is likewise frequently a familial trait. Colon carcinoma is amenable to a complete surgical cure, because it grows slowly and metastasizes late; but, in spite of this, a high percentage of carcinomas prove inoperable at the time of operation. The results of surgical treatment could be greatly improved by earlier diagnosis. There are three stages in the carcinoma: (1) the stage of clinical latency, (2) the stage of gastrointestinal manifestations and (3) the stenotic stage. During the first stage the diagnosis is always more or less accidental. The correct interpretation of the symptoms of the second stage decides the fate of the patient. Only a few of the symptoms are associated with the focus of the disease. General discomfort, fatigue, feeling of fullness and of pressure after eating and flatulence are the chief symptoms. Pallor, gastric disturbances and occasional colics complete the picture of the early second stage, but gradually stenosis develops and this considerably facilitates the diagnosis. If operation were done during this stage, it would still have a favorable prognosis. Conservative treatment is justified only when carcinoma can be definitely excluded. Especially the comparatively mild disorders of incipient stenosis with spasmodic pains in the abdomen, irregularities of the formerly regular defecation, meteorism, pallor, mild anemia and loss of weight must be taken as strongly indicative of colonic cancer. They make it imperative to use all diagnostic aids. Clinical examination by means of inspection and palpation should be complemented by laboratory tests. The examination of feces for mucus and blood may be valuable, but only identical results in repeated examinations are reliable. Mild hypochromic anemia and occasional leukocytosis are suggestive but by themselves are of no particular value. The same applies to the sedimentation speed of the erythrocytes. Although it is often greatly increased in malignant tumors, it is not necessarily so. The outcome of cancer reactions likewise cannot by themselves be taken as an indication for operation. The most important diagnostic measure is the roentgen examination with the best available apparatus and technics and with various exposures. Even this method has its limitations. Incipient carcinomas without ulcerations, and small carcinomas hidden behind a fold of mucous membrane may escape detection. Moreover, the differentiation of benign and malignant stenoses and the exclusion of spasm is often difficult. Exploratory laparotomy should be resorted to, after all other examinations have failed and yet colon carcinoma is suspected. Alternate diarrhea and constipation, loss of weight, admixture of blood and mucus to the feces and persistent contraction of the intestine above the stenosis are usually regarded as the cardinal symptoms, but the author points out that they are not present in more than 60 per cent of the cases. Ileus is the most frequent and the most feared complication. Abscess is another dangerous complication. Intense peristalsis may cause early

invagination of a small tumor. Severe hemorrhages resulting from the erosion of vessels are rare, but perforation into a neighboring organ is more frequent. In spite of the fact that some patients succumb to a radical operation, this intervention deserves a wide application, because all palliative operations are of slight value. They prolong life for only a few months, during which the patient suffers intensely. In the presence of ileus a fistula must first be made. The operation is thus performed in three stages. In carcinoma of the transverse colon and of the loop of the sigmoid, the Mikulicz method of exteriorization can be successfully employed. In carcinoma of the colon on the right side (cecum, ascending colon, hepatic flexure and right transverse) the one stage operation is the method of choice.

Ugeskrift for Læger, Copenhagen

102:1081-1104 (Oct. 17) 1940

- *Peripheral Facial Hemispasm and Its Treatment. H. Jessen.—p. 1081.
 Case of Polyneuritis after Intoxication at Work with Calcium Nitrate. A. Ibsen.—p. 1084.
 *Treatment of Acute Otitis Media with Sulfapyridine (Preliminary Report). B. R. Hansen.—p. 1087.
 Experiences with Chemotherapeutic Treatment of Acute Otitis Media. C. C. Bager.—p. 1091.
 *Effect of Sulfapyridine in Some Cases of Leukemia. P. Plum and J. K. Poulsen.—p. 1093.
 Sulfapyridine Treatment in Case of Leukemia. J. Bang.—p. 1095.
 Case of Vaccine Pustules on Eyelids Treated with Sulfapyridine. V. Larsen.—p. 1096.

Peripheral Facial Hemispasm.—According to Jessen, peripheral facial hemispasm is a well defined disorder depending on irritation of the facial nerve. When in some cases an etiologic agent can be established it is most often a tumor of the cerebellopontile angle, but in most cases the disorder is cryptogenic or autonomic. Treatment consists in paralyzing the nerve with diluted alcohol. In grave cases in which the whole nerve area is affected the nerve must be attacked at the stylomastoid foramen by the anterior or the posterior route. In milder cases with localized spasms excellent results are obtained by paralyzing only the peripheral nerve branches at their issue from the parotid fascia. The picture of the disorder and treatment are illustrated by four cases, and the differential diagnosis is illuminated by one case of cortical origin (Jackson epilepsy) and one of psychogenic hemispasm.

Treatment of Acute Otitis Media with Sulfapyridine.—Hansen reports on the results of the treatment in 127 cases, with 130 nontreated cases as control. The drug seemed to him to have a certain favorable effect, especially in shortening the course in the patients who recover without operative treatment. No positive conclusion could be drawn concerning the patients operated on because of the small number. For the time being he advises against treatment of patients with acute uncomplicated suppuration of the middle ear with sulfapyridine in the practice because of the toxic effects.

Sulfapyridine in Leukemia.—Plum and Poulsen administered sulfapyridine to 2 patients with chronic myeloid leukemia, 2 with acute lymphatic leukemia and 1 with chronic lymphatic leukemia. A transitory improvement in the general condition and the blood picture was seen in the 2 cases of acute lymphatic leukemia.

102:1129-1156 (Oct. 31) 1940

- Chronic Carbon Monoxide Intoxication: Review and Cases. F. Bom.—p. 1129.
 Three Cases of Carbon Monoxide Intoxication. K. Hermann.—p. 1133.
 Scabies Morbidity and Treatment of Scabies in Denmark. V. Genner.—p. 1135.
 *Case of Leptospirosis Canicularis with Marked Nephropathy. N. Bukh.—p. 1142.
 Mild Cases of Leptospirosis (Weil's Disease). I. Knudsen.—p. 1146.
 Anaphylactic Shock after Injection Treatment of Varices with "Varicoid." A. Bertelsen.—p. 1147.
 Treatment of Eczema. P. Levison.—p. 1148.
 Fracture of Lesser Trochanter: Rare Fracture—How Rare? A. Stefansson.—p. 1148.

Leptospirosis Canicularis with Nephropathy.—The nephritis in Bukh's case was characterized by true uremia, incipient anuria and pronounced impairment of renal function for a long time. The grave nephropathy is ascribed to the canicular infection. Two months after discharge examination of the patient showed complete restoration of the kidney function.

Book Notices

New Facts on Mental Disorders: Study of 89,190 Cases. By Neil A. Dayton, M.D., M.C., Director, Division of Statistics and Director, Division of Mental Deficiency, Massachusetts State Department of Mental Health, 1926.—Cloth. Price, \$4.50. Pp. 486, with illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, Publisher, 1940.

The Massachusetts State Department of Mental Health has had in Dr. Dayton, the author of the present work, a student of statistics of mental diseases who has produced a mass of material previous to this book and in this volume a mass of statistics which is beyond easy assimilation. The modern mental hygiene system of Massachusetts has permitted the collection of statistics on all patients admitted to mental hospitals and other mental institutions between the years 1917 and 1933. There are 56,579 first admissions in this group, and other groups of cases being the total number of cases studied to 89,190. During this period the first World War, prohibition and repeal, and the depression entered into the picture. Most of the material has been tabulated and graphed. There are 110 graphs. The main topics which are considered are age and mental disorders, nativity and alcoholism not only in mental disorders but with regard to other factors such as sex and marital status. Marriage as a factor is reported, and clinical diagnosis is a principal point which is included. The reader going through this volume is amazed at the number of pre-conceived ideas of mental disorders which are exploded by Dr. Dayton's valid statistics. Each of these factors is broken down into as many subgroups as possible; for instance, under marriage the group is divided into rural and urban. There is a religious subgrouping; veterans are compared with nonveterans, the foreign born with native born, the length of time in the United States and other countries. The multiplicity of features leads one to believe that it will be a long time before there is a more thorough study ever made to cover this subject. The ratio of divorces and separations to the total number of marriages and the two combined with regard to education and literacy does not carry with it a comparable table or interpretation. After each table and graph there is a chart discussion. The author goes into the matter at the end of some chapters with a good interpretation of the whole picture. It is interesting to note that the author has a summary at the beginning of the chapter instead of at the end, and this might be a valuable precedent. The book is to be recommended to all those who wish to get a picture of the mental patient who is hospitalized and particularly those *en masse*. It should be full of ammunition for writers on the subject of marriage, alcoholism, sex and mental diseases for some time to come.

A College Textbook of Hygiene. By Dean Franklin Smiley, A.B., M.D., Medical Adviser and Professor of Hygiene in Cornell University, New York, and Adrian Gordon Gould, Ph.B., M.D., Assistant Medical Adviser and Assistant Professor of Hygiene in Cornell University. Third edition. Cloth. Price, \$2.50. Pp. 539, with 135 illustrations. New York: Macmillan Company, 1940.

The first edition of this textbook appeared in February 1928 and a second edition followed in 1934. The present volume is quite up to date and is sufficiently complete to serve as a source of information not only on public health but also on personal health. Indeed, it is aimed primarily as a guide for students as well as a book of instruction in classes. The experiences of the authors as medical adviser and assistant medical adviser in Cornell University give them practical experience on which to base their recommendations. Some of the points which they make have great practical value for every physician. For instance, as a result of their observation of food ordered by students in university cafeterias it was noted that among the chief faults in the selection of food was excessive use of meat, white bread and potatoes, lack of coarse bread, lack of vegetables at the noon meal and a lack of variety of cooked cereals, also poorly cooked and poorly flavored vegetables, too few salads, no variety of fruit at breakfast and a provision of skimmed milk only for drinking purposes. Obviously a little reform in the direction of education regarding diets for students would be a great step toward aiding the national campaign for physical fitness. An especially interesting chapter is the one entitled "You and Your Doctor," which explains why every one should have

a private physician and go to him periodically for examination and advice. One of the best sections here is that on choosing a physician. There is a good statement of the advantages and the disadvantages of the fee for service system and of various technics which have been developed for changing the nature of the practice of medicine. The authors feel that it would appear to be sound procedure to conserve the values that are proving to be inherent in our present scheme of fee for service in medical practice and at the same time to make every effort to remedy its most glaring defects. They offer some suggestions toward improvement. The suggestions are sound. They are based on a reading and an understanding of much of the literature which has appeared on this subject in recent years. This book is supplemented by a good glossary of technical terms and may be heartily recommended as one of the best textbooks available in this field.

Men at Their Worst. By Leo L. Stanley, M.D., Chief Surgeon, California State Prison, San Quentin. With the collaboration of Evelyn Wells. Cloth. Price, \$3. Pp. 322, with 24 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1940.

For twenty-seven years Dr. Leo L. Stanley has been chief surgeon of the California State Prison at San Quentin. Here he came in contact with many a notorious criminal. He has observed the coming of scientific advancement in the conduct of prisons and has himself experimented widely with plastic surgery, glandular technics and similar problems. In his conclusion he points out that his twenty-seven years of observation have given him no definite conclusions as to prevention of crime through education. In his glandular experimentation he has done over 10,000 testicular implantations and believes that there is a place in the medical management of prisoners through a study of the endocrines. The volume makes an interesting book of reminiscences but is not well organized and does not represent much in the way of a scientific contribution to the questions involved in the care of criminals.

Recent Advances in Sex and Reproductive Physiology. By J. M. Robson, M.D., D.Sc., F.R.S.E. With introduction by Professor F. A. E. Crew, M.D., D.Sc., F.R.S., Director of the Institute of Animal Genetics, Edinburgh. Second edition. Cloth. Price, \$5. Pp. 329, with 62 illustrations. Philadelphia: Blakiston Company, 1940.

This edition indicates the rapid progress made in our understanding of the action and uses of hormones and substances having hormone-like actions related to reproduction. Since 1934, when the first edition appeared, a number of crystalline compounds have been isolated from the various endocrine glands, particularly the gonads and the adrenal cortex, and others with similar properties have been prepared in the laboratory. Our knowledge of the physiologic action of these compounds has thereby been cleared of much confusion resulting from experimentation with crude and relatively inactive extracts of glands. Furthermore, numerous crystalline compounds for therapeutic use have also been made available. Following these developments, innumerable reports have appeared in the past few years on the clinical uses of such substances, studies on their excretion and their metabolism in animals. The literature on these advances has become so vast that the average physician is usually unable to keep abreast of it, and even the specialist has difficulty in digesting the mass of writings. For this reason Robson's monograph is of distinct value. The author has selected a large number of articles from the scientific literature of the world and has evaluated their contents critically and with imagination indicating that the author, who himself has contributed greatly to our knowledge of the endocrines, understands keenly the problems and questions which are most pertinent at the present time. In this manner the reader will be in a position to attain a clear picture of the newer developments in the field. In this book there is discussed systematically the nature of the sex cycle, the histologic changes of the sex organs, the relationship of the various glands to one another, the chemistry, physiology and standardization of the various endocrine principles and the applications of the various preparations to clinical problems. This book is valuable to the physician in giving him an understanding of the principles of therapy and it is also recommended to the physiologist as a means of surveying the recent literature in the field of reproduction.

Methods for Diagnostic Bacteriology: A Complete Guide for the Isolation and Identification of Pathogenic Bacteria for Medical Bacteriology Laboratories. By Isabelle G. Schaub, A.R., Assistant in Bacteriology, Department of Pathology and Bacteriology, The Johns Hopkins University School of Medicine, Baltimore, and M. Kathleen Foley, A.B., Bacteriologist in Charge of the Diagnostic Bacteriological Laboratory of the Medical Clinic, The Johns Hopkins Hospital, Baltimore. Cloth. Price, \$3. Pp. 313. St. Louis: C. V. Mosby Company, 1940.

This book is a manual of methods in diagnostic bacteriology written principally for interns, medical students and student technicians. The book is divided into three parts: The first part is concerned with bacteriologic diagnosis and consists of six chapters, the second part deals with serologic diagnosis and is divided into two chapters, while the third part is concerned with mediums, stains and staining technic, reagents and tests and is composed of three chapters. There are no illustrations, and only one side of the page contains printed matter, leaving the other side for notes. There are no theoretical discussions or explanations, the material being confined to explicit instructions. Many tables are included in which related organisms are differentiated. The book should prove very useful to diagnostic laboratories and to the group for which it was written.

The Organism: A Holistic Approach to Biology Derived from Pathological Data in Man. By Kurt Goldstein, M.D. With a foreword by K. S. Lashley. American Psychology Series. Henry E. Garrett, General Editor. Cloth. Price, \$4. Pp. 533. New York: American Book Company, 1939.

Previous to the present régime in Germany, Kurt Goldstein was considered the leading pathologist in the country. His laboratory in Frankfurt contained a mass of serial sections of the nervous system from the elephant down to the smallest of animals. He had considerable experience in working with traumatic cases in the first World War. After leaving Germany he paused for a short while in the Netherlands, where he wrote the present volume. Then he came to the United States, and his book has been translated into excellent English. In brief, it is a complex but basically sound summary of the general belief about the functioning of the central nervous system. Goldstein believes that the reflexes and other similar concepts of nervous activity cannot be taken out of the theoretical context but that the organism must be thought of as a whole. The point of view is broadly biologic. The clinical material and the research material are included to illustrate points. A number of new concepts are brought out, supported well, such as dedifferentiation, organism as a constant, and life and mind antagonism. It is a splendid, deep and complex study directed toward the psychologist, and undoubtedly of value to the physician or scientist who has to deal with problems of organic neurology.

The Streptococci: Their Descriptions, Classification, and Distribution, with Special Reference to Those in Milk. By William D. Frost, Ph.D., Dr. P.H., and Mildred A. Engelbrecht, Ph.D., Assistant Professor of Bacteriology, University of Alabama, University. Cloth. Price, \$4.25. Pp. 172, with reproductions of 120 photomicrographs. Madison, Wis.: Willdorf Book Company, 1940.

This book contains reports of the investigations which Dr. Frost and his associates have made over a period of many years. The work was supported by the certified milk interests in the Chicago and Milwaukee areas and involves the bacteriologic examination of upward of 25,000 samples of milk drawn directly from the cow's udder. The samples of milk were plated in blood agar and the streptococci present isolated and identified. The methods used in the study are discussed at length in the book. Much space is wasted in the reproduction of photomicrographs of different colonies of streptococci which morphologically are indistinguishable. The book should prove of interest to dairy bacteriologists and to health officers, as well as to veterinarians.

The Virus: Life's Enemy. By Kenneth M. Smith, F.R.S. Cloth. Price, \$2. Pp. 176, with 20 illustrations. New York: Macmillan Company; Cambridge: University Press, 1940.

More and more the viruses are beginning to be recognized as important agents in the causation of disease. Now that smallpox, measles, infantile paralysis, influenza and many other important conditions are being recognized as of this etiology, the public should have an understanding of the nature of viruses at least as good as that which they have of bacteria. These viruses seem to exist midway between the living and the nonliving. They are spread by carriers, both human and insect in type. They are found as infections of plants and lower

animals as well as of man. They vary in their virulence and they seem to be undergoing an evolution which brings them into new diseases such as encephalomyelitis. This volume, prepared primarily for a public audience, will do exceedingly well as a source of information for physicians who have not done much to keep abreast of our advancement in this field. It is written excellently and succinctly. It includes a table of the various important virus diseases and a good index.

The Head and Neck in Roentgen Diagnosis. By Henry K. Pancoast, M.D., Eugene P. Pendergrass, M.D., Professor of Radiology and Director of the Department of Radiology, University of Pennsylvania, Philadelphia, and J. Parsons Schaeffer, M.D., Ph.D., Professor of Anatomy and Director of the Daniel Baugh Institute of Anatomy, Jefferson Medical College, Philadelphia. Cloth. Price, \$12.50. Pp. 976, with 1,251 illustrations. Springfield, Illinois & Baltimore: Charles C. Thomas, 1940.

This richly illustrated book deals with the x-ray appearance of the normal head and neck and the x-ray diagnosis of practically all the known anomalies, diseases and injuries of these structures. The book is noteworthy for completeness, clarity and the skill with which the important has been emphasized, the rare, and therefore relatively unimportant, minimized and yet not neglected. Intracranial tumors and the making and interpreting of cerebral pneumograms receive the extensive consideration that their clinical importance requires. The rather large amount of space devoted to the soft tissue structures in the neck is justified by the current interest in this subject and the special qualifications of these authors to speak on it. One looks in vain for sections, chapters or even pages carrying evidence of perfunctoriness, padding, ambiguity, stinginess in indexing, inadequacy of legends or other common faults of medical writing and publishing. Reviewers will find it difficult to employ conventional restraint in describing this altogether spendid and unusual book.

Medical Work on the Knights Hospitallers of Saint John of Jerusalem. By Edgar Erskine Hume, Lieutenant-Colonel, Medical Corps, United States Army. Foreword by His Most Eminent Highness Fro Ludovico Chigi-Albani, Prince Grand Master of the Sovereign Military Order of Malta. Preface by Lieutenant-General Sir Aldo Costellani, K.C.M.G., Count of Chisimale, Professor at the Universities of Rome, London and Louisiana. Reprinted, with additions, from the Bulletin of the Institute of the History of Medicine, May, June and July 1938. Cloth. Price, \$3. Pp. 371, with 131 illustrations. Baltimore: Johns Hopkins Press, 1940.

The Knights of Saint John are a band of Christians who founded a hospital in Jerusalem for the care of the poor and pilgrims. During the Crusades they were driven from the Holy Land and established themselves as an order from Cyprus, Rhodes and Malta. The patron saint of the order was Saint John the Baptist. Among other items in their work is the care of leprosy for the natives of Ethiopia, aid to the wounded in Spain and, indeed, the provision of medical organizations of volunteers in all wars. This record of their contribution is a carefully detailed account illustrated with more than a hundred photographs and supplemented with a good bibliography and an index. For nine centuries this organization has rendered distinguished service in the care of the sick. Colonel Hume's account is a fine contribution to the history of Saint John.

Principles of Surgical Care, Shock and Other Problems. By Alfred Blalock, M.D., Professor of Surgery, Vanderbilt University School of Medicine, Nashville, Tenn. Cloth. Price, \$4.50. Pp. 325, with 13 illustrations. St. Louis: C. V. Mosby Company, 1940.

The problem of making the patient safe for the operation, as Moynihan expressed it, has been yielding slowly to the unremitting assault of many scientists. The ability to evaluate the condition of the patient in laboratory as well as clinical terms has been of great service in reducing surgical morbidity and fatality. This monograph is an extension and amplification of the Beaumont Lectures for 1940. It emphasizes that operation is only part of the treatment of surgical patients. The author has presented well correlated and well digested material. The subjects include the importance of anesthesia and careful surgical technic as well as longer discussions on the circulatory and metabolic systems. The theories of shock and the various associated deficiencies of the circulatory constituents and contents receive ample consideration. Plenty of bibliographic references are included. The book is an enlightening report of the care which a modern surgeon can offer along with his skilful technic and judgment at the operating table.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PERSISTENT PAIN FOLLOWING HERNIA REPAIR

To the Editor:—Four months ago I operated on a 55 year old man for a right direct inguinal hernia. After ligating and amputating the sac, I sutured the conjoined tendon to Poupart's ligament along with the medial flap of the external oblique fascia under the cord and imbricated the lateral flap over the cord. He was in bed for two weeks, and shortly thereafter he began to complain of pain, usually sharp and sometimes radiating to the inner aspect of the thigh. At no time was there induration of the cord or swelling of the testis. After I injected procaine hydrochloride solution in the region of the cord just lateral to the pubic tubercle, this point being the distal end of the incisional scar, the pain and tenderness disappeared, only to reappear after the anesthesia wore off. Believing that the nerve which accompanies the spermatic cord might be caught in a ring of scar tissue, I reopened the wound and dissected free the cord, the nerve and its branches at the distal end of the old herniorrhaphy scar. This failed to relieve his symptoms. There is no evidence of recurrence of the hernia. What is the cause of the pain and how can it be remedied?

M.D., Michigan.

ANSWER.—The report of this case seems to indicate a scar or ligature compression of a peripheral sensory nerve, despite the fact that at the second operation a nerve was seen to be free. In this region one deals with two nerves, the iliohypogastric and the ilioinguinal. Callander (Callander, C. L.: *Surgical Anatomy*, Philadelphia, W. B. Saunders Company, 1934, p. 407) said, "The iliohypogastric nerve runs forward in the abdominal wall near the superior margin of the iliac crest, and there divides into hypogastric iliac branches. The hypogastric branch continues forward to a point about 2.5 cm. above the subcutaneous inguinal ring, where it pierces the aponeurosis of the external oblique and is distributed to the skin of the hypogastric region. The iliac branch crosses the iliac crest and is distributed to the skin of the forepart of the gluteal region. The ilioinguinal nerve enters the region at a somewhat lower level than the iliohypogastric and, after crossing part of the iliac fossa, enters the inguinal canal. It runs anteriorly beneath the aponeurosis of the internal oblique immediately above the inguinal ligament and emerges from the subcutaneous inguinal ring." A case similar to this is known in which the man walked with a list to the side because of the pain and had been given orthopedic treatment. He was not cured until the nerve was dissected free of the scar tissue. In the case referred to in the query one would certainly think that further exploration of the wound is desirable until both ilioinguinal and iliohypogastric nerves are identified and traced to their extreme ends. If it is not possible to free the distal branches of the affected nerve, it would probably be better to section it high and possibly inject it with alcohol.

EXPOSURE TO SYPHILIS

To the Editor:—A man with a fresh chancre diagnosed by dark field had intercourse a week ago without prophylaxis or contraceptives being used. What is the best procedure now in reference to the woman? Should treatment be instituted immediately with her and how much, or should her vaginal tract be inspected daily until the appearance of the expected chancre and then treatment started? I realize that starting treatment without definite evidence of infection is forever labeling her as syphilitic whether she would have been or not. Presumably she now has a negative Wassermann reaction, which test has been taken.

M.D., New York.

ANSWER.—The proper procedure in the case outlined depends, of course, on the probability of the woman having become infected with syphilis. Were she certain to become infected one could make a good case for the immediate institution of antisyphilitic treatment, arguing that since treatment results are known to be best in the seronegative primary stage they should be even better in the seronegative stage before the primary lesion has developed. Under the circumstances detailed, however, infection of the woman is by no means certain. This would be true even if the penile lesion which was found to be darkfield positive had been present at the time of intercourse; one gathers, however, that the penile sore developed after the last intercourse with the woman, in which case her chances of escaping infection are excellent. She should be

carefully observed both clinically and serologically; at the first examination the cervix should be inspected through a speculum, in addition to a close scrutiny of skin, mucosal surfaces and genitalia. The procedure from this point on would depend somewhat on the time at which the patient came under observation, since the desirable maneuvers are related to the date of her exposure.

From this date she should have a serologic test for syphilis done at two, four, five, six, seven, eight, nine, ten and twelve weeks, assuming of course that it continues to give negative results and finally, before being discharged from observation, a final test four months after exposure. If at all practical, a complete inspection including a speculum examination is highly desirable but is urgently necessary only in the first few weeks when there is the opportunity to make the diagnosis of syphilis in the seronegative stage, in case she has acquired the disease.

This is the setup for the use of the so-called prophylactic dose of arsphenamine, which is a dangerous and fortunately outmoded procedure. Actually to administer any antisyphilitic treatment to this woman would, for safety, necessitate the completion of the entire schedule of treatment for seronegative primary syphilis, just as though that diagnosis had been made.

ADDICTION TO PAREGORIC

To the Editor:—Seven years ago a man who is now 33 years old was in an automobile accident and, as a result, afterward suffered from frequent headaches. It was because of the severity of these headaches that he began to take paregoric. He had also a 4 plus Wassermann and has taken treatments for about ten weeks. In the beginning he started with 2 ounces of paregoric each day, gradually increasing the amount until he was taking a pint a day. Two years ago he started to inject the paregoric by boiling the alcohol off and then straining it through cotton, using an eye dropper and a needle for the injection. By this method he has ruined every vein in his arms and legs. He has gone to many different drug stores and is now unable to obtain paregoric from any one of them. He says he can get along fairly well with 4 oz. (120 cc.) daily, that is, 1 ounce (30 cc.) per dose, but is unable to obtain even that amount. In order to fight the habit he has tried to become a drunkard, but alcohol alone has had little effect. He has also tried pentobarbital sodium, having taken it intravenously, but after ten minutes' sleep he wakes feeling worse. At present he can walk only about 20 to 30 feet and is then forced to rest because of shortness of breath. This man is anxious to overcome the habit. He would like to take antisyphilitic treatments.

M.D., West Virginia.

ANSWER.—The underlying causes of narcotic addiction are in the personalities of the addicts. No person is immune to opiate addiction. Morphine administered to any hundred persons will in time produce abstinence symptoms and make 100 addicts. However, there are two major types of personalities, the potential and the nonpotential narcotic addict. There are many persons who are unsuspecting potential narcotic addicts, who get along well until narcotic drugs come into their lives. The ones who do not succumb are not always the stronger willed; but the excessive indulgence holds no appeal to them, and often they get more pain than pleasure from it, so the experience is not repeated. One should avoid repeating the dose of opiate when great relief is given or more than an anodyne effect is secured, especially in neurotic patients. More than 75 per cent of the addicts seen today who do not belong to the vicious type are made up of the inadequate personalities who are unwilling or think they are unable to stand physical or mental stress without the relief of narcotism. The patient in question is definitely a potential addict who either is of the vicious type or who has been associating with such people to the extent that he has adopted their methods. A normal accidental addict does not inject paregoric, use an eye dropper and a needle and resort to intravenous injections to obtain a greater "kick," ruining every vein in his arms and legs and using greater amounts than are necessary.

The fact that the patient does not care for pentobarbital sodium or alcohol means that he is unwilling to accept a weaker substitute for his accustomed opiate. Syphilis does not need narcotic relief. This patient can be successfully denarcotized at any reputable institution where narcotic patients are accepted; those in charge will ascertain whether he has a really incurable disease that necessitates narcotics, and if not they can, after disintoxication treatment, attempt to rehabilitate him if he has the financial means. However, from the history the prognosis is unfavorable. If the patient's means are limited an institution nearly similar to the Narcotic Farm at Lexington, Ky., offers the best chance of a favorable outcome.

ADHESIVE FOR CIGARET PAPERS

To the Editor:—During a discussion of cigarettes and their composition one mentioned the fact that the paste which glues the cigaret paper together might be harmful. Could you inform me as to the composition of the substance used to paste the cigaret paper together and if it is at all harmful?

B. B. Favuzza, M.D., Franklin Square, N. Y.

ANSWER.—Although some types of cigarettes, such as the hollow stemmed East European varieties, are made without paste, by crimping the paper along the edge, and others may use dextrin, starch or similar vegetable pastes, by far the greater number, including almost all of the popular American blends, are made with the use of an adhesive made of casein, the protein obtained from milk. The products of combustion or destructive distillation of this protein include ammonia and other nitrogenous substances, which may be irritating in high concentration. The extremely minute amount of the material used in the production of cigarettes, however, compared with the amount of tobacco and paper present, makes it impossible to detect any differences in the composition of the smoke due to the presence or absence of the adhesive. There is no evidence therefore and, in fact, little possibility that the substance used to paste the cigaret paper together is at all harmful.

FACE MASKING IN NEWBORN NURSERIES

To the Editor:—Will you please make a statement as to the status of "nurse masking" in the nursery? How generally is it practiced? Does the Chicago Board of Health require it in Chicago hospitals? Would a hospital not employing such masking be legally liable for contagious spread through the respiratory system affecting its nursery patients?

E. D. Huntington, M.D., Chicago.

ANSWER.—The rules and regulations of the Chicago Board of Health for maternity hospitals require that nurses, physicians and all others entering the newborn nursery wear a suitable face mask all year, except during the summer months; these rules are strictly adhered to by Chicago hospitals. During the summer months, the wearing of face masks by the nursing and other personnel is optional.

The fixing of legal responsibility, in instances in which infection of the respiratory tract spreads through the nursery, would require thorough investigation and often would be impossible to establish. Obviously, if any of the personnel are suffering from such an infection they should not be permitted to work in the nursery. If they do not have an active infection of the respiratory tract it would be difficult to demonstrate the failure to wear a face mask as responsible for an outbreak of respiratory disease.

ABDOMINAL DISTENTION IN DIABETIC GIRL

To the Editor:—A diabetic girl aged 14 years was hospitalized four weeks ago and the blood sugar was brought from 400 mg. to 120 mg. by use of a 1,650 calory diet made up of protein 80 Gm., fat 90 Gm., carbohydrate 135 Gm. and insulin. She was discharged from the hospital after two weeks on this diet and insulin (regular 40 units to the cubic centimeter), 35 units before breakfast, 20 units before lunch and 30 units before dinner. Two days later she complained for the first time of abdominal distention, which was extreme and caused moderate embarrassment at breathing. The gain in weight was 13 pounds (6 Kg.) in two weeks. Except for this condition she felt much better than previously and her appearance was much improved. There was no complaint of distention while she was in the hospital bed. Several days later a complete gastrointestinal examination was done and was negative. Chest x-ray films showed slight hypertrophy of the heart. The pulse ranges from 104 to 114 per minute and is regular in rate. The heart sounds are normal and the rate is regular. The lungs are normal to physical and x-ray examination. Abdominal examination reveals a generalized and extreme distention which is tympanitic in character; there are no masses or tenderness. The bowels are regular, and spontaneous daily movement occurs. Urine examination is negative except for sugar, which ranges from 1 plus to 2 plus with occasional negative tests in the morning. There is no evidence of edema. She complained once of dimness of vision but this cleared up. The thyroid is normal in size. Urinary output and intake balance normally. In the morning there is little or no distention on arising but it gradually increases during the day to a maximum in the evening. At the night meal she feels "too full to eat," although she does eat the prescribed diet. The diagnosis of diabetes mellitus was first made by another doctor six months ago and insulin was taken in approximately the same dosage as at present for three months. During the period insulin was taken the same distention occurred and persisted in spite of all treatment until insulin was stopped. There was no distention present during the period when no insulin was taken. I have exhausted all possibilities that I know of in trying to determine the cause of this condition. I have been unable to find a parallel case in the medical records indicating any relation between large doses of insulin and abdominal distention. Any help that you might give me would be greatly appreciated.

M.D., New York.

ANSWER.—Several possibilities suggest themselves as the cause for the unusual abdominal distention:

1. The condition is reminiscent of that seen when diabetic children received bulky diets, especially those containing bran along with large amounts of leafy green vegetables. Is it pos-

sible that at home the patient takes additional food, particularly in the form of broth or between-meal lunches? If she was using certain diabetic candies and diabetic cookies she might be receiving a good deal of bran or agar agar.

2. Does the patient swallow air during rapid eating?

3. Can the condition be related to the rapid gain of weight, 13 pounds in two weeks, incident to bringing the diabetic condition under control? This implies retention of water in a body previously dehydrated and, since there is no peripheral edema ("insulin edema"), one wonders whether there may not be some fluid in the abdomen.

4. It is difficult to believe that the distention and attendant gastrointestinal symptoms represent an unusual type of allergic response to insulin, particularly since no other manifestations of hypersensitivity are described.

5. In juvenile patients with severe diabetes who are maintained entirely on regular insulin (without protamine zinc insulin) it is not uncommon to have marked enlargement of the liver with abdominal distention, which at times may be so great as to give rise to a "pot-belly" habitus. The liver may be difficult to feel on physical examination but should be evident by x-ray examination. In the case under discussion it is possible that this manifestation of disturbed metabolism became evident only when there was retention of water in the liver following institution of treatment with insulin.

6. The possibility should be kept in mind that the abdominal distention is due to some cause entirely apart from diabetes, such as a megacolon, abdominal tuberculosis or vitamin deficiency. Why should the heart show "slight hypertrophy" and why is there tachycardia?

Extensive studies have already been carried out. One can suggest only that the patient be kept under close watch so that other observations as regards both diabetic and nondiabetic complications can be made. It is likely that shifting the patient to a combination of protamine zinc insulin and regular insulin, both types given daily before breakfast, would permit even better control of the diabetic condition.

DIGITALIS FOLLOWING STROPHANTHIN

To the Editor:—I am of course aware of the precautions necessary concerning the use of strophanthin when a patient has been receiving digitalis, but what I have been unable to find is information concerning the use of digitalis when a patient is receiving strophanthin. Is it possible merely to substitute a maintenance dose of digitalis when the strophanthin is discontinued or is digitalization necessary to the same extent as with a patient who has received no prior medication?

M.D., Iowa.

ANSWER.—Since strophanthin is excreted more rapidly than digitalis, its cumulative effect is comparatively small. It is advisable, therefore, to start with higher than just maintenance doses of digitalis when therapy shifts from strophanthin given intravenously to digitalis given by mouth. However, the dose of digitalis chosen depends on the intensity of the previous treatment with strophanthin and the response to it. After a single dose of strophanthin, digitalization will be necessary to the same extent as when a patient has received no prior medication. When daily injections of strophanthin are given a high degree of "digitalization" can be obtained, and for patients receiving these it may be sufficient to continue with ordinary maintenance doses of digitalis administered orally. If intoxication occurs after intravenous strophanthin therapy, an interval of a few days should be allowed to elapse until the toxic manifestations have disappeared, just as is done after excessive digitalization, after which maintenance doses of digitalis can be resumed.

MICROSCOPIC DIAGNOSIS OF MALIGNANT TISSUE

To the Editor:—What are the principles of the microscopic diagnosis of cancer? Which is more important, the morphology of the cell or the architecture of the tissue? Why do skilled pathologists so frequently disagree in their diagnosis of tumor? In the textbooks of pathology which I have consulted but little information on this important subject can be obtained.

M.D., Kentucky.

ANSWER.—The morphologic signs of malignant disease are variations in size and shape of cells, hyperchromatism of nuclei, and excessive mitotic activity. When these microscopic features occur among cells which still remain within normal boundaries the lesion is designated as precancerous or potentially cancerous. The criterion of fully established malignant disease is when cells having these morphologic appearances have transgressed their normal boundaries. Skilled pathologists disagree in their diagnoses of tumors because the microscope has definite limitations and because it is difficult to estimate the biologic character of a tumor from its morphologic appearance.

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THE PROPHYLACTIC USE OF SULFANILAMIDE

IN PATIENTS SUSCEPTIBLE TO RHEUMATIC FEVER

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This is the report of a four year study to determine whether sulfanilamide (para - amino - benzene - sulfonamide) administered prophylactically prevents recurrences of acute rheumatic fever. A preliminary description of the first two years of our work appeared in January 1939.¹

As Coburn² and others have shown, beta hemolytic streptococcus infections usually precede episodes of rheumatic fever, and the antistreptolysin titer of the patient's blood is elevated during the attack.³ While the beta hemolytic streptococcus is not considered to be the direct and sole cause of rheumatic fever, its close association with periods of rheumatic activity makes it seem probable that the organism plays a significant role in initiating the disease process. If the factor of infection with the beta hemolytic streptococcus could be removed or sufficiently attenuated, it is possible that the active rheumatic state might not reappear in a susceptible person.

The Tréfouëls, Nitti and Bovet⁴ in 1935 and Buttle, Gray and Stephenson⁵ in 1936 reported that sulfanilamide exerted a protective effect in experimentally induced beta hemolytic streptococcus infections in mice. They injected living organisms intraperitoneally into mice and noted that animals fed sulfanilamide immediately afterward survived longer than unprotected control mice. Coburn and Moore⁶ in 1939 described

experiments in which guinea pigs were completely protected both from spontaneous and induced cervical adenitis of beta hemolytic streptococcus origin by the prophylactic administration of sulfanilamide.

The drug has been used prophylactically in human beings in attempts to control puerperal infections⁷ and epidemics of streptococcal tonsillitis⁸ and scarlet fever⁹ with varying degrees of success. Administered during measles or whooping cough, it apparently reduces the incidence of complications, especially bronchopneumonia.¹⁰ It is also being used routinely in the Johns Hopkins Hospital and elsewhere in the prophylaxis of infections following compound fractures and extensive lacerations.

Several articles have been published on the effect of sulfanilamide administered during the course of acute rheumatic fever and chorea, including those by Swift, Moen and Hirst¹¹ and Massell and Jones.¹² These authors and others agreed that clearcut beneficial results from such treatment were absent and that toxic symptoms, notably increased fever, tachycardia and rash, were almost universal. In general, the period of treatment was short; Swift and his associates gave moderate doses to 8 patients over a period of from three to seven days. Massell and Jones, using a larger dose, maintained the therapy from a few days to two months. They did not state the number of patients treated for periods longer than two weeks. On the basis of these studies, it has been generally accepted that the use of sulfanilamide is contraindicated in acute rheumatic fever. The fact that sulfanilamide does not behave in such a manner in other diseases suggests that further study of this apparently toxic reaction might throw light on the pathogenesis of rheumatic fever.

At the same time that our original report appeared, Coburn and Moore⁶ reported studies on the prophylactic use of sulfanilamide in several groups of rheumatic children. Administered to rheumatic subjects after the onset of streptococcal pharyngeal infections, the drug did not prevent rheumatic recrudescences. However, seventy-nine out of eighty children to whom sulfanilamide was administered continuously throughout the winter escaped hemolytic streptococcal infection and signs of rheumatic activity. In this, Coburn's and

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The authors had the benefit of the interest and advice of Dr. Perrin H. Long during this study.

1. Thomas, Caroline B., and France, Richard: A Preliminary Report of the Prophylactic Use of Sulfanilamide in Patients Susceptible to Rheumatic Fever, *Bull. Johns Hopkins Hosp.* **64**: 67 (Jan.) 1939.

2. Coburn, A. F.: The Factor of Infection in the Rheumatic State, Baltimore, Williams & Wilkins Company, 1931.

3. Coburn, A. F., and Pauli, R. H.: Studies on the Immune Response of the Rheumatic Subject and Its Relationship to Activity of the Rheumatic Process: VI. The Significance of the Rise of Antistreptolysin Level in the Development of Rheumatic Activity, *J. Clin. Investigation* **14**: 769 (Nov.) 1935.

4. Tréfouël, J.; Tréfouël, J. (Mme.); Nitti, F., and Bovet, D.: Activité du p-aminophénylsulfamide sur les infections streptococciques expérimentales de la souris et du lapin, *Compt. rend. Soc. biol.* **120**: 756 (Nov. 23) 1935.

5. Buttle, G. A. H.; Gray, W. H., and Stephenson, D.: Protection of Mice Against Streptococcal and Other Infections by P-Aminobenzenesulfonamide and Related Substances, *Lancet* **1**: 1286 (June 6) 1936.

6. Coburn, A. F., and Moore, L. V.: The Prophylactic Use of Sulfanilamide in Streptococcal Respiratory Infections, with Especial Reference to Rheumatic Fever, *J. Clin. Investigation* **18**: 147 (Jan.) 1939.

7. Colebrook, L., and Kenny, M.: Treatment with Prontosil of Puerperal Infections Due to Hemolytic Streptococci, *Lancet* **2**: 1319 (Dec. 5) 1936. Johnstone, R. W.: Prophylactic Use of Sulfonamide Preparations in Obstetric Practice, *Brit. M. J.* **1**: 562 (March 12) 1938.

8. Smith, A.: Chemotherapy of Streptococcal Infections, Particularly Streptococcal Tonsillitis, *Lancet* **2**: 1064 (Nov. 6) 1937.

9. Sako, W.; Dwan, P. K., and Platou, E. S.: Sulfanilamide and Serum in the Treatment and Prophylaxis of Scarlet Fever, *J. A. M. A.* **111**: 995 (Sept. 10) 1938.

10. Thompson, A. R., and Greenfield, C. R. M.: Chemotherapy in Measles and Whooping Cough Prophylaxis and Treatment of Complications, *Lancet* **2**: 991 (Oct. 29) 1938.

11. Swift, H. F.; Moen, J. K., and Hirst, G. K.: The Action of Sulfanilamide in Rheumatic Fever, *J. A. M. A.* **110**: 426 (Feb. 5) 1938.

12. Massell, B. F., and Jones, T. D.: The Effect of Sulfanilamide on Rheumatic Fever and Chorea, *New England J. Med.* **218**: 876 (May 26) 1938.

Moore's findings and ours were in virtual agreement. Unfortunately, while their study included twenty-five children living in their normal home environment, the rest were segregated from infection in a convalescent home, and adequate control studies were not made.

The present study has been kept on the simplest possible basis: Small daily doses of sulfanilamide were administered over a period of months to adolescents and young adults who had suffered from one or more attacks of acute rheumatic fever, the last one occurring within three years of their inclusion in this study. Other patients with similar history were observed as controls each winter. With minor exceptions, we adhered to a uniform dose throughout chosen with the idea of giving a dose definitely smaller than a therapeutic one yet large enough to maintain an ascertainable level of sulf-

discharge. A few patients had been observed during their acute illnesses in the wards of other hospitals¹⁴ and through the kind cooperation of the staffs of those hospitals were transferred directly to the cardiac clinic. The patients were chiefly drawn from the middle and laboring classes of society; only a few were destitute.

In all, 90 patients were followed in the treated and control groups combined (charts 1, 2, 3 and 4). Twenty-one patients were observed throughout the four year period; 21 were followed for three years, 24 for two years and 17 for one year. In addition, 4 died (2 during the third and 2 during the fourth year of observation, and 3 patients were lost sight of, 1 during the second and 2 during the third year of observation.

The distribution of cases between the treated and control groups was not made entirely by lot. Each

TABLE 1.—Social, Economic and Personality Factors and Cardiac Status of Treated and Control Patients

	A.*						B.			
	Group Treated with Sulfanilamide (55 Patients)		Total Control Group (67 Patients)		Controls Who Had Major Rheumatic Episodes (14 Patients)		Controls Never Receiving Sulfanilamide (35 Patients)		Controls Who Received Sulfanilamide Other Seasons (32 Patients)	
	No.	%	No.	%	No.	%	No.	%	No.	%
Social, economic and personality factors										
Nutrition										
Good.....	23	41.8	21	31.3	4	28.6	10	28.5	11	34.3
Fair.....	32	58.2	46	68.7	10	71.4	25	81.5	21	65.7
Poor.....	0	0	0	0	0	0	0	0	0	0
Housing										
Good.....	14	25.5	15	22.4	3	21.4	7	20.0	8	25.0
Fair.....	35	63.6	40	59.7	5	35.7	22	62.8	18	56.2
Poor.....	6	10.9	12	17.9	6	42.9	6	17.2	6	18.8
Intelligence										
Good.....	14	25.5	14	20.0	3	21.4	9	25.7	5	15.6
Fair.....	36	65.4	44	65.6	7	50.0	22	62.8	22	68.8
Poor.....	5	9.1	9	13.5	4	28.6	4	11.5	5	15.6
Cooperation										
Good.....	27	49.0	15	22.4	5	35.7	6	17.2	0	28.1
Fair.....	28	51.0	37	55.2	6	42.9	14	40.0	23	71.9
Poor.....	0	0	15	22.4	3	21.4	15	42.8	0	0
Cardiac status †										
Valvular disease										
Present.....	39	70.9	45	67.2	10	71.4	23	65.7	22	68.8
Borderline.....	6	10.9	6	8.9	2	14.3	3	8.6	3	9.3
Absent.....	10	18.2	16	23.9	2	14.3	9	25.7	7	21.9
Cardiac enlargement										
Present.....	21	38.2	21	31.3	6	42.9	9	25.7	12	37.5
Borderline.....	8	14.5	9	13.5	1	7.1	4	11.5	5	15.6
Absent.....	26	47.3	37	55.2	7	50.0	22	62.8	15	46.9
Functional capacity										
II.....	4	7.3	2	3.0	2	14.3	0	0	3	9.3
Borderline.....	5	9.1	4	6.0	1	7.1	2	5.7	2	6.3
I.....	46	83.6	61	91.0	11	78.6	33	94.3	27	84.4

* A, Comparison of treated group, control group and control patients who had major rheumatic episodes during observation; B, comparison of control patients who never received prophylactic treatment with those control patients treated during other seasons.

† I and II refer to the classes defined by the New York Heart Association in the classification of functional capacity of cardiac patients.

anilamide in the blood. Sulfanilamide was the only drug used throughout the four year study; we made no attempt to evaluate any of the newer sulfonamide derivatives such as sulfapyridine. In general, treated patients were started on sulfanilamide during October and November and were given the drug continuously throughout the winter and spring, the drug being stopped in June. The sedimentation rate was determined by the method of Wintrobe¹³ at every visit of both treated and control patients. By this technic, the upper limit of normal for the corrected sedimentation rate at the end of an hour is 10 mm. for both males and females.

SELECTION OF PATIENTS

Almost all of the patients had been observed in the medical wards of the Johns Hopkins Hospital during one or more attacks of acute rheumatic fever and were transferred to the cardiac clinic to be followed after

year except the first¹ some of the patients were placed in the treated and some in the control group by the alternation of patients who were similar in age, length of history of rheumatic fever and degree of cardiac involvement. After one year of treatment half were shifted to the control group and half kept in the treated group by the same process. However, several additional factors operated to take patients out of the treated into the control group:

1. Some patients were entirely willing to take the treatment but were not able to attend the cardiac clinic for observation regularly enough. Generally, such patients were employed¹⁵ or lived at a considerable distance.

2. Some patients did not want to be treated or did not want to attend the cardiac clinic frequently even though they were able to do so. These were usually young people who felt perfectly well and who refused to believe that there was any-

14. Baltimore City Hospital (N. P.), Sinai Hospital, (M. D., H. E., N. S., E. Z.), Union Memorial Hospital (M. H., G. H., G. N.).

15. On the other hand, many employed patients came in frequently and were in the treated group.

13. Wintrobe, M. M.: The Erythrocyte Sedimentation Test, Internat. Clin. 2: 34 (June) 1936.

thing serious the matter with them or any imminent danger of recurrent illness. They were not necessarily unintelligent or unhygienic in other ways.

3. Some patients were selected by lot to take sulfanilamide and agreed to do so but repeatedly forgot to take the drug, lapsed in frequent attendance at the clinic and when they did come showed no detectable sulfanilamide in the blood. After several attempts to rally them into better cooperation they were transferred to the control group.

Two patients were transferred from the treated to the control group on account of mild symptoms of toxicity from sulfanilamide which recurred when repeated attempts to administer the drug were made.

The patients in groups 3 and 4 received only a small amount of sulfanilamide each, taken in a discontinuous fashion over a period of weeks. They were, therefore, never included in the treated group but were placed permanently in the control group. Sulfanilamide therapy was never again attempted in subsequent years for such patients.

To offset these patients who through necessity were shifted into the control group still other new ones were added to the treated group. It cannot therefore be said that the treated and control groups were identical, but efforts were constantly made to keep them as nearly comparable as possible. For instance, while factors 1, 2 and 4 prevented certain patients from being treated, their diet, housing, intelligence, general hygiene and cardiac lesions were not essentially different from those in the treated group. On the other hand, some of the uncooperative ones (group 2, previously mentioned) and many of those who lapsed during therapy were definitely inferior to those in the treated group. These factors have been analyzed and summarized in table 1. As will be seen later (table 6), however, relapses in control patients occurred as often among the well endowed as among the poorly endowed. Finally, 32 of the patients were in the treated group part of the time and in the control group part of the time, so that here the equivalence was exact.

The patients varied in age from 7 to 37 years at the time of entering the study. The ages as listed in charts 1, 2, 3 and 4 are referred to the date of entry, indicated by the heavy vertical line. By far the greater number of patients were between the ages of 14 and 26. The age distribution was similar in the treated and control groups (table 2). Since patients under 14 were not available in the Department of Medicine, we were able to observe only five children under that age, four of whom were generously transferred to our care from other hospitals.

HISTORY OF RHEUMATIC FEVER

Every patient had had one or more "major rheumatic episodes," the last one occurring within three years of entering the study. A major episode is defined as one in which the patient is ill enough to be confined to bed at home for at least a week or to be hospitalized and in which fever, polyarthritis, active carditis, chorea or other signs are unequivocal. Undoubted chorea is considered a major episode only in the event the patient affected has suffered from other forms of rheumatic fever as well. All major episodes occurring before or after entering the study are indicated in the charts by black blocks. No attempt has been made to illustrate the severity or duration of the attack or the months in which the attack occurred, except to show, during the period of study, whether the attack came before, during or after the period of prophylactic treatment.

A minor episode signifies a definite but less incapacitating form of rheumatic fever, such as transiently painful, swollen joints or mild choreiform movements. A questionable episode includes any illness in which the diagnosis of rheumatic fever is in doubt, as well as such isolated symptoms as epistaxis, sore throat, arthralgia or precordial pain in a rheumatic person. The minor and questionable episodes occurring during years before entering the study are often poorly or incorrectly remembered, and so no attempt has been made to chart them. Those occurring during the period of study, therefore, are not charted but are described later in this paper.

Without discussing in detail the cardiac status of the 90 patients studied, it may be briefly stated that 62 patients, or 68.9 per cent, had definite chronic rheumatic endocarditis with involvement of one or more of the valves of the heart; 9 patients, or 10 per cent, had questionable valvular disease, and 19, or 21.1 per cent, had no definite signs of endocarditis and were classified as patients with potential heart disease. Thirty patients (33.3 per cent) had definite cardiac enlargement, 12 patients (13.3 per cent) had hearts that were questionably enlarged and 48 patients (53.4 per cent) had hearts of normal size. Finally, the functional cardiac capacity was definitely impaired in only four instances (4.4 per

TABLE 2.—Age Distribution of Treated and Control Patients

Age	Group Treated with Sulfanilamide	Controls Who Had Never Received Sulfanilamide	Controls Who Received Sulfanilamide in Other Seasons	Total Control Group
7-13	2	3	0	3
14-19	29	22	17	39
20-29	15	3	0	12
30-37	9	7	6	13
Total.....	55	35	32	67

cent) and questionably impaired in seven others (7.8 per cent); by far the greatest number of patients (79, or 87.7 per cent) were able to carry on ordinary physical activity without any discomfort whatsoever. The distribution of these factors among the treated and control groups is analyzed in table 1.

ADMINISTRATION OF SULFANILAMIDE

Dosage.—During the season of 1936-1937, the treated group of patients received 0.9 Gm. (actually 15 grains) of sulfanilamide daily, divided into three doses. In the subsequent three seasons of 1937-1938, 1938-1939 and 1939-1940, 1.2 Gm. (20 grains) was administered daily, divided into two doses taken twelve hours apart.¹⁶ While theoretically it would be preferable to divide the medication into three or four doses distributed throughout the day, the increased likelihood of doses being skipped made it seem wise to reduce the routine to the simplest possible form. Each patient's schedule of medication was arranged with him with especial regard to convenience. The morning dose was usually taken on first arising or just before breakfast, the second dose exactly twelve hours later.

In the effort to protect patients during the winter and spring when rheumatic recrudescences are most frequent, the season of prophylactic treatment was begun during October and November and continued until June. Since a small number of patients are seen at each

16. The patients under 14 years of age were given 0.9 Gm. daily; in 1 (M. H.), the dose was later increased to 1.2 Gm. In several patients who excreted sulfanilamide with great rapidity the dose was raised to 1.8 Gm. a day.

biweekly session of the cardiac clinic it took several weeks for the whole group to start and stop the drug. With two exceptions,¹⁷ no patient was given sulfanilamide during the months of July, August or September. The average length of a season of prophylactic therapy was eight months, the season varying from seven to nine months. In the last two years 5 patients began late and took sulfanilamide for shorter periods, and this is indicated in chart 2. The cross-hatched areas in charts 1 and 2 indicate the seasons when prophylactic treatment was administered to each person.

FREQUENCY OF VISITS AND CONTINUITY OF TREATMENT

As a rule the patients receiving sulfanilamide were seen in the cardiac clinic at three week intervals throughout the period of treatment. Actually most of

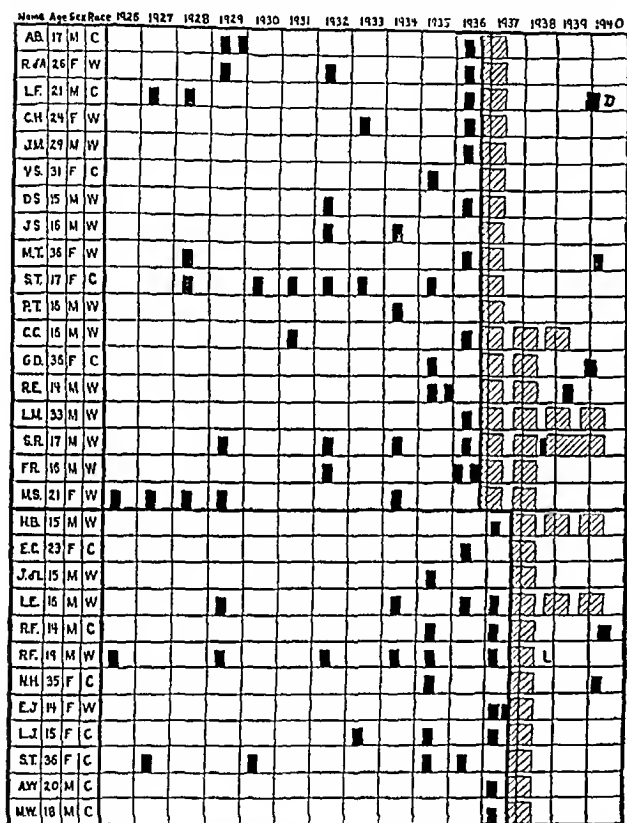


Chart 1.—Major episodes of acute rheumatic fever in patients taking sulfanilamide prophylactically who entered the study in 1936 and 1937. The heavy vertical lines indicate the date of entering the study. The heavy horizontal line divides the groups entering the study in successive years. Each black block represents a major rheumatic episode. Cross-hatched areas indicate periods of prophylactic sulfanilamide therapy. D, died; L, lost.

them were seen more frequently when the drug was first given; later, when everything was running smoothly, the interval was sometimes lengthened a little. Some of the patients in the control group were seen as frequently as those in the treated group; many were seen less frequently. Some were checked at half-yearly or yearly intervals. In order to follow every patient up to July 1, 1940, the date this study closed, a few control patients who could not be brought into the cardiac clinic were questioned by letter as to occurrence of rheumatic fever or other illness. All but 1¹⁸ replied that they had been perfectly well.

¹⁷ These 2 patients, S. R. and C. d'L., had had attacks of rheumatic fever during the summer months of the previous year.

¹⁸ M. R.: See later in article under "questionable episodes."

CONCENTRATION OF SULFANILAMIDE IN THE BLOOD

Determinations of the concentration of sulfanilamide in the venous blood were begun in April 1937 and were subsequently made at each visit during the periods of treatment. The method of Marshall¹⁹ was used. When 0.9 Gm. of the drug was taken daily in three divided doses the concentration of the drug in the blood fluctuated between 1.0 and 3.0 mg. per hundred cubic centimeters. On 1.2 Gm. a day divided into two doses, patients were usually found to have a blood sulfanilamide level varying between 1.8 and 3.0 mg. per hundred cubic centimeters during the morning, one and a half to five and a half hours after the morning dose. The level at times rose even higher and occasionally fell low. Twelve hours after the last dose had been taken the blood sulfanilamide level was below 1.0 mg. per hundred cubic centimeters, and twenty-four hours after a dose only a trace of sulfanilamide was found. There was no tendency toward accumulation of the drug when administered over a long period of time.

TOXIC EFFECTS

Most of the patients took the drug without the slightest discomfort. The toxic symptoms which follow larger therapeutic doses were rarely if ever observed on the small daily dose administered during this study. We have never encountered cyanosis, anemia, granulocytopenia, acidosis, severe dermatitis or febrile reactions. Despite the experience of Coburn and Moore,⁶ there was no tendency toward loss of weight or inability to gain weight among our patients. A few patients complained of vertigo or drowsiness during the first few days of drug therapy but subsequently felt perfectly normal. One rather overconcerned boy stated that he "could not think as well," but he continued the drug during two seasons and performed his clerical work satisfactorily.

During the first two seasons only a few extremely slight reactions were encountered; 3 patients complained of transient vertigo, and 2 noted mild erythematous eruptions. None of the patients stopped the drug permanently on account of toxic symptoms. During the seasons of 1938-1939 and 1939-1940, 2 patients were transferred from the treated to the control groups because of mild reactions:

T. d'R., an Italian boy, whose mother and father were subject to urticaria and hay fever respectively, complained of urticaria which first appeared four weeks after he started sulfanilamide and which disappeared and reappeared when the drug was stopped and then resumed. Later he was again started on sulfanilamide in doses of 0.15 Gm. a day. He complained of drowsiness, fatigue and nausea after taking the drug three days and refused to continue to take it.

N. S., a Jewish boy of 7 years, was started on 0.9 Gm. of sulfanilamide daily when he was clinically and symptomatically well, with normal temperature and sedimentation rate. The white blood cell count, however, was recorded as 19,150, with 50 per cent polymorphonuclears and 5 per cent juvenile neutrophils. This count was not checked. Three days later a mild infection of the upper part of the respiratory tract developed in him, and his mother thought he looked red and hot. When seen a week after starting the drug he complained of fatigue, his throat was slightly injected, his temperature was 99.4 F. and his sedimentation rate normal. The blood sulfanilamide level was 2.0 mg. per hundred cubic centimeters. His white blood cell count was now 4,300, with 17 per cent juvenile and 28 per cent adult polymorphonuclears—a total of 45 per cent. On account of the leukopenia the drug was stopped. During the next two visits his white cell count rose to 9,500

¹⁹ Marshall, E. K., Jr.: Determination of Sulfanilamide in Blood and Urine, *Proc. Soc. Exper. Biol. & Med.* 36: 422 (April) 1937.

and then to 11,550, with 4 per cent and 11 per cent juvenile forms and 61 per cent and 37 per cent adult neutrophils respectively. He was again started on sulfanilamide; 0.3 Gm. was administered one evening, and 0.3 Gm., the next morning. When he awoke that morning his face was "very red," and the redness persisted, although he had no complaints, so he was brought to the hospital. The boy's cheeks were crimson, with marked circumoral pallor. There was a slight erythema over the flexor surfaces, not accentuated in the axillary folds. He seemed tired and "toxic." There was no fever, no strawberry tongue or injection of the pharynx. The leukocyte count was 14,150. The drug was stopped, and his parents observed that the redness of the face soon disappeared. Seen two days later he seemed normal; the leukocyte count was 6,700, with 3 per cent juvenile and 38 per cent adult neutrophils.

On account of the drop in the total leukocyte count without granulocytopenia on two occasions, as well as the erythema and the feeling of lassitude, the drug was permanently stopped in this instance.

Other toxic reactions, which did not necessitate permanent stopping of the drug, were as follows:

In D. R. an itching rash developed over the dorsal surfaces of her extremities, associated with erythema, nine days after starting sulfanilamide. The rash disappeared two days after the drug was stopped. Two weeks later the patient started to take 0.6 Gm. a day, and in twenty-three days she noted an itching rash on her wrists which again disappeared promptly on discontinuing the pills. Three days later she was started once more on the drug, which was increased rapidly to the full dose without untoward effects, and continued for the remainder of the season.

G. H., aged 9, may have had slight drowsiness and fatigability during the first eighteen days of the administration of 0.9 Gm. of the drug daily, and his mother noted a little rash on the calves of his legs but nowhere else. These questionable effects were not noticed during subsequent months of sulfanilamide therapy.

Although the hemoglobin, volume of packed red cells and sedimentation rate were carefully followed throughout the four year study, frequent determinations of the white blood cell total and differential count were not made until the season of 1939-1940. Of 14 patients receiving sulfanilamide for the first time in 1939-1940, 8 had normal white blood cell counts throughout the period of treatment. Five showed a drop in total white blood cell count to levels between 4,000 and 5,000 without granulopenia. In two instances the leukopenia was present on one visit to the clinic only, eleven days and twelve weeks after starting sulfanilamide. In 2 other cases the leukopenia, first noted five and a half weeks and twelve weeks respectively after beginning sulfanilamide, persisted for a three month period. These 4 patients continued and completed their sulfanilamide courses without untoward effects. The fifth patient, N. S., is described in detail earlier in this section. One patient (whose total leukocyte count was 4,800 when the drug was started) showed a drop to 2,950 leukocytes in three weeks and to 2,600 with 60 per cent granulocytes four days later. Sulfanilamide was stopped. The leukocyte count rose to 5,500 in two weeks. Sulfanilamide was again started and continued for the next six months; the leukocyte count fluctuated between 4,300 and 5,400 throughout this period.

Finally, 1 patient (G. C.) who took sulfanilamide in both 1938-1939 and 1939-1940 and whose usual leukocyte count fluctuated between 4,400 and 6,500 began the drug late in October 1939 on a day when her leukocyte count was 4,500. The white blood cell count remained between 4,500 and 4,900 until the end of January 1940. Early in February she had influenza and from then until the last of April her leukocyte

count lay between 3,150 and 3,750, returning to more than 5,000 thereafter. The drug was not stopped during the period of leukopenia.

Thus we observed no alarming reactions from the administration of sulfanilamide during our four years of study, nor were the patients disturbed by symptoms more distressing than drowsiness or itching. Some drop in total leukocyte count over a period of days or weeks was not uncommon, but the phenomenon was self limited and was never accompanied by granulopenia.

EFFECT OF TREATMENT

Beta Hemolytic Streptococcus Infections.—None of the patients receiving sulfanilamide prophylactically suffered from acute beta hemolytic streptococcus infection during the period of treatment. Among the control patients, A. M. was hospitalized in April 1937, with an acute sore throat; pharyngeal culture showed 98 per cent beta hemolytic streptococci. In October 1938, E. J. had an infection of the leg from which an almost pure culture of beta hemolytic streptococci was obtained.

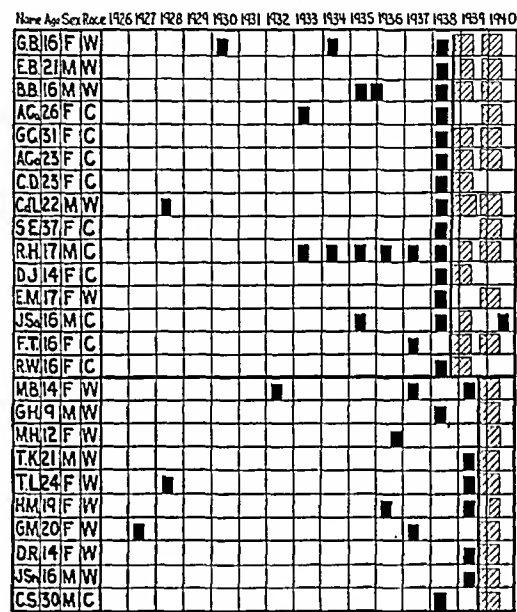


Chart 2.—Major episodes of acute rheumatic fever in patients taking sulfanilamide prophylactically who entered the study in 1938 and 1939. The symbols are as given in chart 1.

Pharyngeal cultures were taken on treated patients at each visit at intervals of several weeks and at somewhat longer intervals on control patients, throughout the seasons of 1937-1938, 1938-1939 and 1939-1940. A few cultures were taken in 1936-1937. A total of 500 cultures was taken on treated patients during the period of sulfanilamide administration. Twenty of these, or 4.0 per cent, were positive for the beta hemolytic streptococcus (table 3). Eight of the positive cultures were obtained from two persons who had had fairly large numbers of beta hemolytic streptococci in the flora of the throat just preceding the administration of sulfanilamide. One patient (G. D.) had 40 per cent beta hemolytic streptococci in the pharyngeal culture before sulfanilamide was started, and three out of eleven cultures showed 5 per cent of the organism after the drug was started.

R. H., a 17 year old Negro boy, had been hospitalized for two months with his sixth attack of rheumatic fever in six years. Symptoms during the first week in the hospital included sore throat, abdominal pain, painful tender joints and cough

with bloody sputum. He had huge infected tonsils, mitral stenosis and aortic insufficiency with changing electrocardiograms. A pharyngeal culture on admission showed one colony of beta hemolytic streptococci; two subsequent ones showed normal flora. The sedimentation rate, elevated at first, fell to normal three weeks before discharge and there remained.

Ten days after leaving the hospital in December he came to the cardiac clinic. He was symptom free, with a normal

TABLE 3.—Comparison of the Incidence of Positive Pharyngeal Cultures in the Treated and Control Groups

Season	Treated Group During Sulfanilamide Season			Control Group During Control Season		
	Total Number of Throat Cultures	Throat Cultures Positive for Beta Hemolytic Streptococci		Total Number of Throat Cultures	Throat Cultures Positive for Beta Hemolytic Streptococci	
		No.	%		No.	%
1936-1937 and 1937-1938.	166	8	4.7	71	10	14.1
1938-1939.....	136	7	5.1	100	12	12.0
1939-1940.....	198	5	2.5	165	19	11.5
Total for 1936-1940.....	500	20	4.0	336	41	12.2

sedimentation rate, and remained so throughout the year. Pharyngeal culture, however, on the first and second visit to the clinic showed 50 per cent and 40 per cent beta hemolytic streptococci. Sulfanilamide was then started; successive cultures of material from the throat during the next fourteen weeks showed the following percentages of beta hemolytic streptococci: 40, 50, 5, 5, 0 and 10. At that point tonsillectomy was performed; culture of the macerated tonsillar tissue showed 50 per cent beta hemolytic streptococci. Subsequent pharyngeal cultures showed only normal flora for the remainder of the sulfanilamide course and through the summer months. The boy took sulfanilamide again the following winter; nine pharyngeal cultures showed normal flora, while one showed 1 per cent beta hemolytic streptococci. He had no recurrence of rheumatic fever.

Aside from these 2 patients who were carriers of beta hemolytic streptococci when sulfanilamide was started, 10 treated patients had single (in two instances, two) positive throat cultures during the four seasons of therapy. The average proportion of beta hemolytic streptococci in these isolated cultures was 9.3 per cent.

In contrast to the carriers G. D. and R. H., mentioned previously, 2 patients who showed positive cultures immediately preceding sulfanilamide therapy became free from beta hemolytic streptococci as soon as the drug was started:

G. H. had 80 per cent and 50 per cent beta hemolytic streptococci ten days before and on the day of starting sulfanilamide. After eighteen days on the drug a culture of material from

TABLE 4.—Occurrence of Major Rheumatic Episodes in the Prophylactically Treated and Control Groups of Patients

Group	Person-Seasons	Major Episodes	
		Number	Percentage
Sulfanilamide.....	79	0	0
Control.....	150	15	10.0
Total.....	229	15	6.6

his throat showed only normal flora, and this state of affairs persisted throughout the season of treatment.

M. H. showed 5 per cent, 40 per cent and 20 per cent beta hemolytic streptococci in three pharyngeal cultures taken three weeks before, two weeks before and the morning before starting treatment. Seventeen days later the culture showed only normal flora, and so remained throughout the season of therapy.

In the control group, 41 of 336 cultures taken during the four control seasons were positive, an incidence of

12.2 per cent or three times that observed in the treated group.²⁰ The positive cultures were distributed among 32 patients; there was no evidence that any of the patients were carriers. Only 2 patients had as many as three positive cultures; these were not obtained on consecutive visits nor was the streptococcus the predominating organism. The average proportion of beta hemolytic streptococci in the positive cultures on control patients was 21.2 per cent, over twice as great a concentration as in the positive cultures of treated patients.

Thus it appears that during the eight month treatment and control periods, pharyngeal cultures positive for beta streptococci were more numerous and more strongly positive among control patients than among treated patients. Did this difference result from the presence or absence of prophylactic treatment or from inherent differences in the two groups of patients? Relatively few cultures were taken during the four "summer" months, and this particularly applies to the control group. However, the fact that of seventy-nine such "summer" and pretreatment cultures taken on patients treated during the "winter" months in 1938-1939 and 1939-1940, fourteen, or 17.7 per cent, were positive strongly suggests that the treated group was at least ordinarily susceptible to harboring the beta hemolytic streptococcus.

Major Rheumatic Episodes.—During the four years of this study, not a single major attack of acute rheumatic fever occurred in any patient while taking sulfanilamide as a prophylactic (table 4). Fifteen major

TABLE 5.—Distribution of Major Rheumatic Episodes Between Two Subdivisions of Control Group

	Person-Seasons	Major Episodes	
		Number	Percentage
A. Had sulfanilamide other seasons....	84.5	8	9.4
B. Never had sulfanilamide.....	65.5	7	10.7
Total control group.....	150	15	10.0

rheumatic episodes were observed among the control cases during the same period, and one such episode occurred during August in a patient who had received prophylactic sulfanilamide the preceding season.²¹ In all, 55 patients received prophylactic doses of sulfanilamide during seventy-nine seasons (charts 1 and 2²²) while 67 patients were observed as controls during one hundred and fifty seasons²³ (charts 1, 2, 3 and 4).

Of the control group, 35 patients never underwent a season of prophylactic treatment (charts 3 and 4); eight major episodes occurred among these patients. The remaining 32 had at some time taken sulfanilamide for one or more seasons and then were shifted to the control group (charts 1 and 2); seven major episodes occurred among control patients of this type (table 5). It is thus apparent that a course of prophylactic treatment has no statistically demonstrable effect on the subsequent appearance of attacks of acute rheumatic fever after sulfanilamide has been withdrawn.

Among the control group, then, fifteen major episodes occurred during a total of one hundred and fifty person-

20. This does not include positive cultures encountered during hospitalization for major and questionable episodes.

21. A "season" indicates the eight month period of prophylactic therapy.

22. A major rheumatic episode occurring during the treatment seasons would have been represented by a black block superimposed on a cross-hatched area. Since no such episodes occurred, this arrangement of symbols does not appear in charts 1 or 2.

23. In 4 cases of death during control seasons, the duration of such seasons was counted as half the normal season for statistical purposes.

seasons, an incidence of one major attack per ten person-seasons. If a similar rate of attack were present among the treated group, eight major episodes among seventy-nine person-seasons would be the normal expectancy. Yet there were actually no attacks among the treated group. The likelihood that this was the result of chance is calculated as $P = 0.003$; in other words, a difference as great as or greater than that observed would have arisen by chance only three times in a thousand assuming that the treated and control patients are comparable groups.²⁴

(May and June). The June attacks occurred early in the month and in two instances at least were preceded by beta hemolytic streptococcus throat infections toward the end of May. C. A. had two attacks in one year, with nearly a three month period of well-being between attacks; L. F. was hospitalized twice in 1939-1940 with a month intervening between hospital admissions, but he was never well, so that this whole period is considered as one major rheumatic episode.

On inspecting charts 1, 2, 3 and 4, one will note that the high incidence of major episodes just before inclu-

TABLE 6.—Analysis of Individual Major Rheumatic Episodes Occurring in Control Patients

Name, Sex	Race, Age at Entering Study	Chart Number	Sulfanilamide History		Social, Economic and Personality Factors †				Cardiac Status ‡			Nature of Major Rheumatic Episode §	Duration and Hospitalization
			Sulfanilamide Seasons	Control Seasons *	Nutrition	Housing	Intelligence	Cooperation	Valvular Disease	Cardiac Enlargement	Functional Capacity		
C. A. ♂	N 31	3	Never	1, 2, 3, 4	2	3	3	2	+	+	I	1. Polyarthrititis, endocarditis, first degree heart block 2. Polyarthrititis	Dec. 1936-Feb. 1937, J. H. H. ward May-Aug. 1937 in bed at home under C. C. supervision
S. B. ♂	W 15	3	Never	1, 2, 3, 4	2	3	2	3	+	—	I	Polyarthrititis, precordial pain.....	Feb.-April 1937 J. H. H. ward
G. D. ♀	N 36	1	1, 2	3, 4	2	3	3	1	+	—	I	Polyarthrititis, precordial pain, dyspnea, fever, tachycardia; throat culture 11/10/39: 25% beta hem. strep.	Oct.-Dec. 1939 in bed at home under C. C. supervision
R. E. ♂	W 14	1	1, 2	3, 4	1	1	1	1	—	—	I	Polyarthrititis and pulmonary infiltration beginning 6/8/39, 15 days after U. R. I.; throat culture: 6/20/39: 40% beta hem. strep.; E. S. R. elevated 8 weeks	June-Aug. 1939 in bed at home under C. C. supervision
R. F. ♂	N 14	1	1	2, 3, 4	2	2	2	2	+	+	I	Polyarthrititis, fever and first degree heart block; E. S. R. still 32 mm. on 7/29/40	June-July 1940 in bed at home under C. C. supervision
L. F. ♂	N 21	1	1	2, 3, 4	2	2	2	2	+	+	II	Polyarthrititis, carditis, fever, severe epistaxis	Nov.-Dec. 1939, Jan.-April 1940 J. H. H. ward
C. H. ♂	N 32	3	Never	2, 3, 4	1	3	3	3	?	—	I	Polyarthrititis following U. R. I. with sore throat and cough	Jan.-March 1939 J. H. H. ward
N. H. ♀	N 35	1	2	3, 4	2	1	1	1	?	?	?	Polyarthrititis and fever preceded by period of extreme weakness and lassitude; E. S. R. elevated 8 weeks	May-July 1940 in bed at home under L. M. D. and C. C. supervision
A. K. ♂	W 13	4	Never	3, 4	2	2	2	2	+	—	I	Polyarthrititis, carditis, ? pericarditis; throat culture 1/15/40: 75% beta hem. strep.; E. S. R. normal; 2/1/40 sore throat; 2/4/40 polyarthrititis	Feb.-April 1940 J. H. H. ward
L. K. ♂	W 16	4	Never	3, 4	1	2	2	3	+	—	I	"Acute rheumatic fever, carditis, mild polyarthrititis"; report from Walter Reed General Hospital	Jan.-March 1940 in Walter Reed General Hospital, Washington, D. C.
P. L. ♂	W 28	3	Never	2, 3, 4	2	2	1	2	+	+	I	Polyarthrititis, endocarditis, ? pericarditis	Dec.-Jan. 1938 J. H. H. ward
M. R. ♀	W 14	3	Never	2, 3, 4	2	3	2	2	—	—	I	Hemichorea	April-June 1938 in bed at home under supervision of Sinnl Hospital
J. S. ♂	N 16	2	3	4	2	3	3	1	+	+	I	Acute rheumatic fever with pericarditis, myocarditis, pleurisy, ? bronchopneumonia and bronchitis	June-Aug. 1940 J. H. H. ward
M. T. ♀	W 36	1	1	2, 3, 4	1	1	2	1	+	+	II	Polyarthrititis and ? erythema nodosum following severe ulcerative pharyngitis (throat culture not obtained); 2 weeks later throat culture showed 5% beta hem. strep.	Feb.-March 1940 in bed at home; C. C. supervision in latter weeks

* Control seasons: 1 = 1936-1937; 2 = 1937-1938; 3 = 1938-1939; 4 = 1939-1940. Numbers in heavy type indicate the season in which the major rheumatic episode occurred.
† Social, economic and personality factors are designated 1, 2 and 3 to indicate good, fair and poor.
‡ Cardiac status is designated +, ?, —, to indicate present, borderline and absent. I, II as in table 1.
§ E. S. R. = erythrocyte sedimentation rate; J. H. H. = Johns Hopkins Hospital; C. C. = Cardiac Clinic; U. R. I. = infection of upper part of respiratory tract.

The details of the fifteen major attacks occurring in the control group are analyzed in table 6, and a summary of the group suffering from recrudescences compared with the treated and control groups is given in table 1. The rate of attacks was highest in 1936-1937, lower in 1937-1938 and 1938-1939 and again high in 1939-1940. The apparent preponderance of attacks in 1940 depended on, first, the high attack rate and, second, the fact that the size of the control group was greater than in any preceding year. Most of the attacks occurred either in early winter (December to February) or late spring

sion of patients in the study is striking and is, of course, due to the fact that patients were selected because they had recently had attacks. The first season such attacks had occurred within three years of admission to the study; thereafter most of the available new patients had had acute rheumatic fever in the hospital within the preceding year. The fact that major attacks seemed more prevalent in both treated and control patients before entering the study than after may be accounted for on three grounds: first, that the patients were selected in such a way that all had had attacks just prior to inclusion in the study; second, that the chances of recurrences diminish with age and with the number

24. Dr. Edwin L. Crosby gave assistance and advice in matters pertaining to biostatistics.

of recurrences; and finally, that while all of the recent major attacks occurring just before and during the study were observed in the hospital, as well as some of the early episodes, other early major episodes recorded in the figures are based on the history as given by the patient, affording some chance for inaccuracy. All these considerations apply equally to treated and

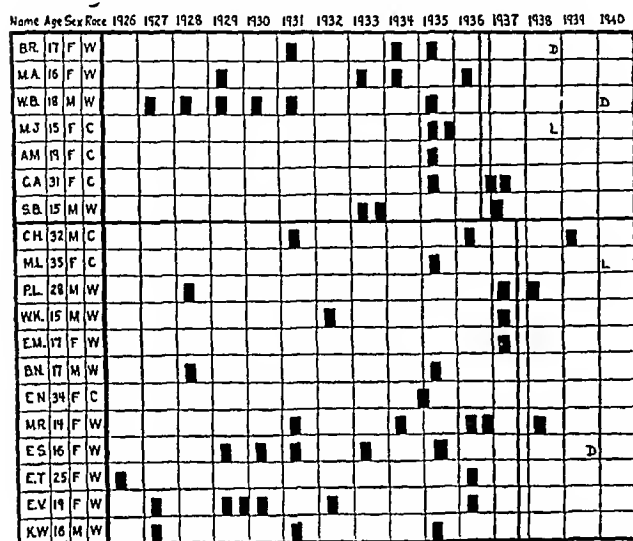


Chart 3.—Major episodes of acute rheumatic fever in control patients who entered the study in 1936 and 1937. The symbols are as given in chart 1.

control patients, and great care was taken to include patients with history of both many and few attacks in both groups.

Minor Rheumatic Episodes.—During the four seasons of observation, only two minor rheumatic episodes occurred among the treated group. Both attacks occurred soon after treatment was begun; 1 patient, F. R., was receiving only one fourth the final daily routine dose.

F. R. was started on 0.3 Gm. of sulfanilamide daily the first season. At the end of a week acute rhinitis without sore throat developed in him, and a week later one knee was painful and swollen for three days, with elevation of the sedimentation rate. The dose of sulfanilamide was subsequently raised.

M. W. began to take 1.2 Gm. of sulfanilamide daily in October 1937. Five days later he had malaise and painful hot wrists. The following day these symptoms had disappeared, but two days later his ankles were painful for a few hours. None of the joints were swollen, and he had no further symptoms.

Among the control patients, six minor recrudescences were noted:

P. L. had pains in his finger joints one day after extraction of an abscessed tooth, and six days later his knees and one wrist were swollen and sore and his sedimentation rate became elevated. He had not been treated with sulfanilamide prophylactically in the cardiac clinic, but he was given 2.4 Gm. of the drug daily for three days by another physician at the time of the dental extraction, beginning the day before the extraction was performed, and received half that dose for two more days.

E. M. had been hospitalized with acute rheumatic polyarthritis and myocarditis and erythema multiforme from January to April 1937. In March 1938 the cutaneous eruption recurred even more severely, continuing until July, associated with polyarthralgia and occasional precordial pain. During June the patient was in bed several days with fever and sore throat.

C. A. had joint pains with elevated sedimentation rate and changing electrocardiograms throughout the winter of 1938-1939.

L. F. had sore throat, cough, low grade fever and mild polyarthritis during April and May 1939, with a sedimentation rate of 30 to 33 mm.

W. K. had polyarthritis in May 1939, following an infection of the upper part of the respiratory tract, with night sweats, malaise and considerable pain and redness of the joints. He went to bed at home for six days. His sedimentation rate, usually normal, remained between 36 and 28 mm. for two months.

J. S., two weeks after one "chest cold" and three or four days after beginning another, had polyarthritis the first week of October 1938, with migratory joint pains and swelling of one knee. The sedimentation rate was 34 mm.

The cases of F. R., M. W. and P. L. suggest that sulfanilamide has little or no prophylactic value if administration is begun two weeks or less before the onset of a rheumatic episode.

Questionable Rheumatic Episodes.—None of the patients receiving sulfanilamide therapy had any febrile or incapacitating illness in which the diagnosis of rheumatic fever was brought into question. (Four patients had clinically typical influenza with leukopenia.) Among the control patients, 5 had illnesses requiring hospitalization in which a relationship to acute rheumatic fever was possible but not certain.

J. S., who has mitral stenosis, was hospitalized in October 1937 with bronchopneumonia. Culture of the sputum showed a small percentage of pneumococcus type IX; beta hemolytic streptococci were not recovered. There were no other signs of rheumatic activity. In 1934 he had had a similar attack with beta hemolytic streptococci present in the pharyngeal culture.

C. A., who had mitral stenosis and first degree heart block, had two attacks of polyarthritis in the spring of 1937. In the spring of 1938 she complained of feverishness, weakness and joint pains. In May 1938 she was hospitalized with fever, arthritis, erysipeloid swelling of the legs, several subcutaneous nodules, tender swelling of a synovial bursa on the back of her hand and a fine papular rash. Sedimentation rate was 32 mm.; culture of material from the throat showed 10 per cent beta hemolytic streptococci. The blood Wassermann reaction, which had been negative the year before, was positive. She received

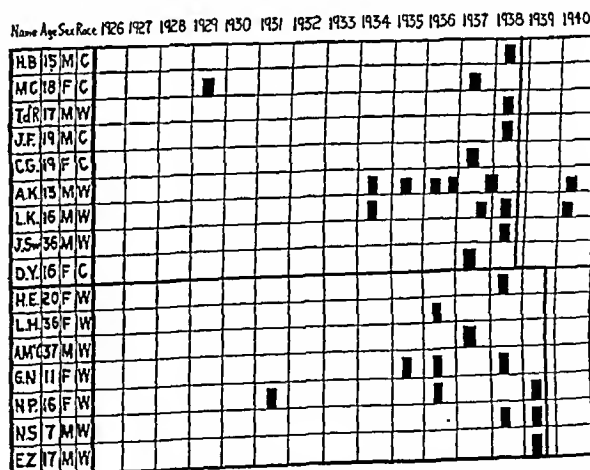


Chart 4.—Major episodes of acute rheumatic fever in control patients who entered the study in 1938 and 1939. The symbols are as given in chart 1.

antisyphilitic treatment and also large doses of salicylates. It was never fully determined whether this attack represented secondary syphilis alone, or rheumatic fever or both.

L. F., who had mitral insufficiency and stenosis and aortic insufficiency, began to have sharp abdominal pain, substernal and precordial pain with some dyspnea early in December 1937. In January 1938 he was admitted to another hospital, with totally irregular cardiac rhythm at a rate of 140, slight orthopnea but no other signs of congestive failure. This was the patient's

first attack of auricular fibrillation. Reversion to normal sinus rhythm with first degree heart block followed a course of digitalis and quinidine.

M. T. was in the Johns Hopkins Hospital for three weeks in November 1938 with lobular pneumonia associated with joint pains and a subcutaneous nodule. No pathogenic organisms were cultured from her sputum.

R. d'A., a white woman of 26 years, who had mitral insufficiency and stenosis, aortic insufficiency and cardiac enlargement, had a hysterectomy in November 1939 to interrupt a pregnancy. Nine days postoperatively fever developed and pain in the lower part of the abdomen, followed by tenderness along the course of the right femoral vein and pain in the axilla on respiration with nonproductive cough. She had signs of consolidation over the lower portion of the left side of the chest, with temperature increasing up to 103.5 F. The diagnosis was thrombophlebitis and pulmonary infarction. By December 11 the symptoms and signs had disappeared, and her temperature had returned to normal. At the height of her fever transient second degree heart block developed in her, and subsequently, prolongation of the auriculoventricular conduction time which persisted for over a month. The T waves remained upright throughout. She had had digitalis at the time of the second degree heart block, but it is doubtful whether she was overdigitalized, especially as her PR interval was still 0.24 on December 27, twenty-four days after stopping digitalis. Similar prolongation of the PR interval occurred during her last attack of acute rheumatic fever in 1936, when she had had no digitalis. Finally, on another occasion when the digitalis dosage was pushed, characteristic T wave changes developed without lengthening of the PR interval.

Other questionable episodes which did not involve hospitalization occurring among control patients were as follows:

E. V. had pain and swelling of the fingers for a few days in the spring of 1939. She was out of town at the time.

M. R., who did not come into the cardiac clinic in 1939-1940, wrote in answer to a follow-up letter, "I had rheumatic fever in December (1939)" but did not describe the attack.

L. J. had bouts of multiple joint pains from October 1939 to April 1940. She was later found to have pyelitis.

R. E. had pain in his right wrist three weeks after the onset of a febrile infection of the upper part of the respiratory tract with a productive cough. The sedimentation rate was 29 mm. three days after the onset of pain.

At each visit patients were specifically questioned concerning the occurrence of epistaxis, joint pains, sore throat, rash, nausea, vomiting, precordial pain, choreiform movements, or other rheumatic symptoms. Among the treated group most of the patients were symptom free throughout the period of therapy. A few each winter complained of mild arthralgia, often in a single joint, without local heat, tenderness or swelling, and in the course of an ordinary cold there might be some soreness of the throat for a day or two. Occasional precordial pain and isolated epistaxis were also noted. No chorea or significant nausea and vomiting were recorded. The only patient who had a cutaneous rash of probable rheumatic origin during sulfanilamide therapy had had the eruption much more markedly before the drug was started:

E. B. had had attacks of erythema multiforme almost every evening for several months while in the hospital during his last acute attack of rheumatic fever, characterized by annular lesions which appeared and faded within a few hours. The lesions had been present frequently during the six weeks between discharge from the hospital and starting sulfanilamide therapy. The lesions recurred but twice, two and a half weeks and four months after beginning the drug, in 1938-1939, once during the summer of 1939 when he was not treated, and twice during the treatment season of 1939-1940. Each recurrence was for a few hours only.

Since the control patients were not all seen as frequently as the treated patients, isolated symptoms were not always recorded as accurately in the control group, but it was our impression that sore throats and epistaxes were more frequent and more severe among the untreated persons.

Prognosis; Deaths.—On entering the study, 4 patients had definite impairment of cardiac functional capacity necessitating some limitation of activity.²⁵ Of these, 2 (L. M. and L. E.) have been receiving sulfanilamide for four and three seasons respectively. The other 2 (L. F., M. T.) were given the drug in 1936-1937 and have been in the control group during the subsequent three seasons. Both of the latter patients have had acute recrudescences of rheumatic fever while in the control group, and L. F. has died of acute rheumatic fever. L. M. and L. E., on the other hand, have had no renewal of rheumatic activity clinically and have shown little or no further impairment of the functional capacity of the heart.

In 2 patients in the control group (B. R. and E. S.) subacute bacterial endocarditis developed, for which they were hospitalized, 1 in this hospital and 1 in the Baltimore City Hospital, with subsequent death and autopsy in both instances. Neither of these patients had ever received prophylactic sulfanilamide. In no patient receiving the drug did subacute bacterial endocarditis develop.

Finally, there were four deaths among patients in the control group, one from acute rheumatic fever and two from subacute bacterial endocarditis, as previously mentioned, and one from an acute illness of uncertain nature (L. F., B. R., E. S., W. B.). There were no deaths among patients in the sulfanilamide group while taking the drug.

COMMENT

The findings in this four year study confirm those reported in January 1939. It is striking that, while major rheumatic recrudescences occurred in 10 per cent of the one hundred and fifty person-seasons observed in the control group, no major episodes occurred during the seventy-nine person-seasons in the treated group. Every effort was made to evaluate the various factors affecting the treated group and control group; these have been set forth in detail in table 1. The treated group contained a slightly higher percentage of patients with organic and functional cardiac disability. In the control series there were more uncooperative patients, but only three major attacks developed among them, which is a smaller percentage than occurred among the cooperative control patients. The factors of nutrition, housing and intelligence were not significantly different in the two groups.

Beta hemolytic streptococci were found in 12.2 per cent of the three hundred and thirty-six pharyngeal cultures obtained from control patients during the months of October through June. It is interesting to compare this finding with two recent studies on the prevalence of beta hemolytic streptococci in cultures of material from the throat of normal persons living in Baltimore. Bourn, Carpenter and McComb²⁶ reported 10.4 per cent positive cultures among 2,812 taken between October and July over a three year period; most of their subjects were medical students;

25. Class II, classification of the New York Heart Association, 1939.

26. Bourn, J. M.; Carpenter, H. M., and McComb, E.: *Streptococcus Haemolyticus (Beta) in the Presence and Absence of Acute Minor Respiratory Infection*, 1928-1931, *Am. J. Hyg.* 17: 761 (May) 1933.

some were dispensary patients. Long and Bliss²⁷ found 10 per cent and 13 per cent of pharyngeal cultures positive for ordinary beta hemolytic streptococci in two smaller groups of normal persons during the winter season. Thus the incidence of positive cultures in normal persons living in Baltimore is almost identical with that found in our control group. Since this is true, the fact that only 4 per cent of the five hundred cultures taken on our treated group of patients were positive gains increased significance. Sulfanilamide prophylaxis apparently caused a substantial reduction in the incidence of the beta hemolytic streptococcus in throat cultures of persons under treatment.

Of considerable interest is the fact that four deaths occurred among the control patients and none among the treated patients, although the latter had equally serious cardiac lesions. Also the fact that 2 of the 4 patients died of subacute bacterial endocarditis, while in no patients under treatment did this serious malady develop, brings up the question of whether sulfanilamide may prevent this complication as well. Our series is too small to bring any statistical evidence to bear on these points.

Since children often have a more fulminating variety of rheumatic fever than adolescents and young adults, and since most cardiac lesions begin in childhood, it seems logical that the sooner prophylactic treatment can be begun the better the results will be. As our study included very few children, we must await other studies to ascertain whether this assumption is correct. The results reported in the preliminary work of Coburn and Moore on children between the ages of 6 and 14 are as good as those of ours in persons of 14 years and over.

SUMMARY AND CONCLUSION

1. Sulfanilamide was given continuously to 55 patients with a recent history of acute rheumatic fever during seventy-nine person-seasons between 1936 and 1940. Sixty-seven patients with similar history, who were given no prophylactic treatment, were observed simultaneously during 150 person-seasons.

2. The drug was taken from November through June, usually in a dose of 1.2 Gm. daily.

3. No serious toxic effects were observed. Mild cutaneous eruptions and some drop in total white blood cell count without granulocytopenia occurred in a few patients. The leukopenia was self limited in duration and was of no apparent clinical significance.

4. Pharyngeal cultures positive for the beta hemolytic streptococcus were less numerous and showed a lower percentage of the organisms among treated patients than among control patients.

5. While taking sulfanilamide, none of the patients had a major attack of acute rheumatic fever or an acute beta hemolytic streptococcus infection.

6. Fifteen major attacks of acute rheumatic fever developed among patients not taking sulfanilamide during the control period. One patient, treated during the winter months, had an acute rheumatic recrudescence in August when he was not taking the drug. Five control patients suffered from acute illnesses which might have been of rheumatic character. One control patient was hospitalized with an acute beta hemolytic streptococcus infection.

7. Subacute bacterial endocarditis developed in 2 control patients.

8. Four deaths occurred among the control group, one from acute rheumatic fever and two from subacute bacterial endocarditis. The cause of death in the other case is uncertain. There were no deaths among persons in the treated group.

Sulfanilamide²⁸ may safely be administered in small daily doses over a long period of time. It appears to be of value in preventing recrudescences of acute rheumatic fever.

THE TREATMENT OF CONGESTIVE FAILURE IN CHILDREN WITH ACTIVE RHEUMATIC FEVER

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During the past three years we have studied the effects of various drugs on the heart and circulation of forty-four children with congestive failure during active rheumatic fever.¹ It is our purpose in this report to call attention to the aspects of the therapy of congestive heart failure peculiar to children suffering from this disease.

METHODS OF STUDY

More than 200 patients, mostly children, with congestive failure have been given prolonged care at the House of the Good Samaritan from 1920 to 1940. In a series of 44 consecutive patients with heart failure, all of whom were between 3 and 15 years of age, we were able to compare the influence of certain drugs on the failing heart. The effectiveness of a drug was determined by increase in urinary output, lowering of the venous pressure, decrease in the size of the liver and loss of body weight. The usual conditions of absolute bed rest and restriction of fluids (1,200 cc. or less per day, varying with the size of the patient) were enforced throughout the period of heart failure. No salt was added to the diet except that used in cooking. Intake and output of fluids were measured.

CLINICAL OBSERVATIONS

Xanthine Derivatives.—Because of the ease of administration, low cost and good results obtained the drugs of the xanthine group are of much value in the treatment of children with rheumatic fever, in particular theocaine (theobromine calcium-salicylate) and theosodate (theobromine sodium-acetate). We have used theobromine calcium salicylate in twenty-three cases, with a satisfactory response in 13, or 65 per cent. It is in our experience the best tolerated of all members of this group, rarely causing any gastrointestinal upset. The optimal daily dose has been 3 to 5 Gm. (an average of 3 Gm.) divided into three doses. We have used it as long as it was effective, in some cases daily for a period of three to four months. Theobromine sodium-acetate has been used in eleven cases, with an excellent effect in 9, or 82 per cent. The higher incidence of benefit from the use of this drug as compared to theobromine calcium-salicylate does not necessarily indicate that theobromine

28. The sulfanilamide used in these investigations was supplied by the Winthrop Chemical Company, Inc., New York.

From the House of the Good Samaritan, Boston.

27. Long, P. H., and Bliss, Eleanor A.: Studies upon Minute Hemolytic Streptococci: IV. Further Observations upon the Distribution of Ordinary and Minute Beta Hemolytic Streptococci in Normal and Diseased Human Beings, *J. Infect. Dis.* 62: 52 (Jan.-Feb.) 1938.

1. Walsh, B. J., and Sprague, H. B.: The Character of Congestive Failure in Children with Active Rheumatic Fever, *Am. J. Dis. Child.* to be published.

sodium-acetate is more efficient in view of the smaller number of cases and the known variability of rheumatic fever. It is well tolerated and without any evident disadvantage when given in the dose of 3 to 5 Gm. daily in divided doses.

Diuretin (theobromine sodium-salicylate) is less effective than the previously mentioned xanthine derivatives, since it frequently causes vomiting when given by mouth. However, when it is impossible to give a diuretic orally, theobromine sodium-salicylate is often effective when administered rectally in doses of 1 to 2 Gm. in tap water three or four times daily.

We have had no success with plain theobromine in the few cases in which we have tried it, chiefly because of nausea and vomiting.

Mercurial Diuretics.—It has been necessary to use salyrgan or mercupurin because of otherwise uncontrollable congestive failure in 27, or 61 per cent, of our patients. Satisfactory diuresis resulted in more than 90 per cent of instances in which these drugs were used when given in the dose of 1 cc. intravenously. In an occasional instance it was necessary to resort to one of these diuretics once or twice a week for several weeks until the patient either improved and was maintained on a xanthine drug or grew worse and died. It was frequently necessary in order to get a good result to precede the mercurial diuretic by 3 to 4 Gm. of ammonium chloride in the previous twenty-four hours. In the treatment of small children 0.5 cc. of mercupurin or salyrgan is sufficient to cause a satisfactory urinary output. We have not had any toxic reactions from these drugs. However, it is unwise to give a mercurial diuretic in the presence of full digitalization, since the mobilization of the edema fluid consequent to the use of the mercurial may lead to intoxication with digitalis. We would advise the omission of digitalis for as long as possible before the administration of mercupurin or salyrgan. Mercupurin in suppositories was satisfactory in seven instances but proved ineffective on three other occasions, possibly because of failure to retain the suppository for a sufficient period. There was mild rectal irritation in 2 patients but no other untoward effects.

Digitalis.—The use of this drug in the treatment of children with rheumatic heart disease and congestive failure has been the subject of considerable controversy. Some authors (Jacobsen and Davison,² Bachmann,³ and Sutton and Wyckoff⁴) have maintained that it is of benefit, while others (Schwartz and Schwedel⁵ and Schwartz and Levy⁶) have concluded that digitalis is not of value in the treatment of heart failure in children.

We have witnessed marked improvement as evidenced by diuresis, loss of edema, decrease in the size of the liver and lowering of the venous pressure in 15 (43 per cent) of the 35 cases in which digitalis was used. We are convinced that digitalis has a definite place in the therapy of heart failure in children although it must be given with greater caution to children than to adults. The lack of response in the majority (20, or 57 per cent) cannot be accounted for readily, except in a few patients

with overwhelming rheumatic infection, since the two groups were comparable in the duration and severity of rheumatic fever and rheumatic heart disease.

It is of considerable interest that the maximum effect was obtained in our patients by doses of digitalis equal to the amount required by adults as calculated by Eggleston's method (1 cat unit, or 1½ grains [0.1 Gm.], of digitalis U. S. P. per 10 pounds [4.5 Kg.] of body weight). This is contrary to the widely held opinion fostered first by McCulloch and Rupe⁷ and later by Jacobsen and Davison² that the effective dose of digitalis in children is 50 per cent to 200 per cent more per unit of body weight than is needed in adults. We have found it not only unnecessary but possibly dangerous to exceed the estimated therapeutic dose of digitalis as determined by Eggleston's rule,⁸ since there seems to be an increased tendency for children with active rheumatic fever to suffer serious cardiac disturbances while under digitalis therapy. It was the appearance of auricular fibrillation in 6 of our patients who were taking digitalis and the return of normal rhythm in 5 of them when the drug was omitted that first impressed us with the unusual responses to digitalis which may occur. In the sixth patient, a 10 year old girl with disease of the mitral valve of six years' duration, the arrhythmia continued until death two weeks after the digitalis was stopped.

Two patients who had tolerated a daily maintenance dose of 1½ grains of digitalis for two weeks had a flare-up of rheumatic fever which coincided with the appearance of auricular fibrillation. In a third patient, who was also receiving a daily dose of 1½ grains of digitalis, auricular fibrillation developed the day after a considerable diuresis from intravenous injections of salyrgan. The fact that auricular fibrillation became manifest in 2 patients at a time when only the estimated therapeutic dose had been reached and in 1 other when the calculated dose was exceeded seems to us to indicate the wisdom of avoiding large amounts of digitalis in children.

Sudden death occurred in 3 patients showing toxic effects from digitalis other than auricular fibrillation (bigeminal rhythm due to ventricular premature beats in 2 patients, and two to one heart block in the third). Another patient, in whom auricular fibrillation had been present within five days of death, died unexpectedly. These experiences have further strengthened our belief that some children with severe rheumatic fever and rheumatic heart disease manifest a peculiar sensitivity to digitalis. While sudden death is not rare in patients suffering from rheumatic heart disease and congestive failure, it generally occurs in those patients who have failed to show improvement or who are growing worse despite all treatment.

In the children whose congestive failure has improved under treatment but who have, as well, signs of intoxication with digitalis, as in the 4 cases just described, one cannot escape the impression that the action of digitalis rather than the rheumatic fever may have been the major factor in the sudden death. Schwartz⁹ was so impressed by the appearance of auricular fibrillation as an early sign of digitalis toxicity in children with rheumatic heart disease and congestive failure, and by

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3. Bachmann, H. A.: Clinical Types of Edema in the Heart Failure of Children, *Arch. Int. Med.* 43: 795 (June) 1929.

4. Sutton, L. P., and Wyckoff, John: Digitalis: Its Value in the Treatment of Children with Rheumatic Heart Disease, *Am. J. Dis. Child.* 41: 801 (April) 1931.

5. Schwartz, S. P., and Schwedel, J. B.: Digitalis Studies in Children with Heart Disease, *Am. J. Dis. Child.* 39: 298 (Feb.) 1930.

6. Schwartz, S. P., and Levy, Joseph: Digitalis Studies on Children with Heart Disease, Effects of Digitalis in Children with Rheumatic Fever and Rheumatic Heart Disease, *Am. J. Dis. Child.* 42: 1349 (Dec.) 1931.

7. McCulloch, H., and Rupe, W. A.: Studies on the Dosage of Digitalis in Children, *Am. J. M. Sc.* 162: 231 (Aug.) 1921; The Tolerance of Children for Digitalis, *South. M. J.* 15: 381 (May) 1922.

8. Eggleston, Cary: Digitalis Dosage, *Arch. Int. Med.* 16: 1 (July) 1915.

9. Schwartz, S. P.: Digitalis Studies on Children with Heart Disease: Auricular Fibrillation in Children with an Early Toxic Digitalis Manifestation, *Am. J. Dis. Child.* 39: 549 (March) 1930.

the death of 1 patient so affected, that he concluded digitalis was actually contraindicated in the treatment of children with rheumatic fever, active carditis and myocardial insufficiency. Our experience indicates that when its dosage is carefully controlled digitalis is useful in the treatment of children with rheumatic fever and congestive failure in spite of its potential dangers.

Dosage.—It is our practice to give $1\frac{1}{2}$ grains of digitalis orally three or four times a day until the total dose as estimated by Eggleston's method is reached. We do not hesitate, although it is seldom indicated, to administer the full calculated amount of digitalis in two or three doses orally or parenterally over a period of eighteen to twenty-four hours. The effect of digitalis is then maintained by a daily dose equal to 1 or $1\frac{1}{2}$ grains (0.06 or 0.1 Gm.); the smaller dose is adequate for children between 5 and 10 years of age.

Electrocardiograms should be taken at frequent intervals, at least every three days, until the full dose of digitalis is given, so that its effect, particularly on auriculo-ventricular conduction, may be observed. Disturbances of rhythm and high grade heart block may occur as a result of digitalis in the absence of anorexia, nausea and vomiting. We are so impressed with the need of electrocardiographic studies in children who are receiving digitalis that we would hesitate to use this drug if facilities for taking electrocardiograms at frequent intervals were not available.

COMMENT

Congestive failure in children with rheumatic heart disease seldom lasts less than a month and occasionally is evident for a year (average duration in our patients was three months). That it is of serious prognostic import is indicated by the death of 32 (73 per cent) of our patients, all of whom had congestive failure at the time of death. Seven (16 per cent) have recovered from congestive failure and rheumatic fever and are now well, and it is possible that the remaining 5 (11 per cent) still in the hospital with heart failure may likewise be restored to a relatively normal life. Though the clinical course is essentially dependent on the severity of the underlying rheumatic fever, the amount of heart failure can be controlled in a large measure by use of appropriate therapy. Diuretics of the xanthine group, particularly theobromine calcium-salicylate and theobromine sodium-acetate, are the first choice in carrying out this treatment. If they prove unsuccessful, digitalis may be tried, if one estimates the dose according to the body weight and bears in mind that children with rheumatic fever and congestive failure are especially prone to intoxication with digitalis. The mercurial diuretics are reserved for those in whom heart failure is increasing despite the use of a xanthine derivative or digitalis.

SUMMARY

1. Forty-four children with congestive failure during active rheumatic fever were given various drugs (theobromine calcium-salicylate, theobromine sodium-acetate, theobromine sodium-salicylate, mercupurin, salyrgan and digitalis) for their effect on the heart and circulation.

2. The xanthine diuretics were found to be of greatest value, in particular theobromine calcium-salicylate or theobromine sodium-acetate in the dose of 1 Gm. three times a day. Theobromine sodium-salicylate given by mouth was found less effective but was useful when given rectally.

3. Mercurial diuretics given intravenously are effective in producing diuresis but should not be given immediately after full digitalization because of the danger of inducing toxic digitalis reactions during the loss of fluid.

4. Digitalis proved to be of value, but it was found necessary to use great care in its administration.

CHRONIC ENDEMIC SELENIUM POISONING

A REVIEW OF THE MORE RECENT FIELD AND LABORATORY STUDIES

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In 1933 Robinson¹ demonstrated selenium in a sample of wheat which had been grown in southern South Dakota and which had previously been shown by Franke and his co-workers² to be toxic when fed to small animals. These contributions solved the problem of the etiology of the pathologic condition in farm animals known in some of the Great Plains states as "alkali disease"³ and simultaneously opened up the larger and more difficult problem of selenium as a possible health hazard to man. The early investigations of Byers⁴ indicating the natural occurrence of selenium in certain soils of some of the western states and its wide distribution in plants available to man as well as to the lower animals brought the problem to the attention of public health investigators. More recently selenium compounds have also come into use in insecticide sprays on the West Coast, and this has added to the hazard from the naturally occurring variety.⁵ Moreover, Beath and his co-workers⁶ have shown that inorganic selenium compounds, such as are used in insecticide sprays, may be absorbed by certain special plants which in turn may serve as converters into organic compounds more or less readily assimilable by plants used in animal and human nutrition. The extent of the health hazard from the increasing use of selenium in the industries has been discussed by Dudley.⁷ Though chemically the selenium compounds constituting an industrial hazard are quite different from those occurring naturally in endemic areas, there is ample evidence to indicate that toxicologically they are at least qualitatively similar.⁸

THE ABSORPTION OF SELENIUM IN MAN IN ENDEMIC AREAS

Field investigations conducted in 1936 in three seleniferous areas of eastern Wyoming, southern South Dakota and northern Nebraska revealed a more or less universal absorption of selenium among the rural population in amounts sufficient to be excreted in the urine in concentrations varying from about 10 to 200 micro-

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2. Franke, K. W.: *J. Nutrition* **8**: 609 (Nov.) 1934.
3. Schoenig, H. W.: *North Am. Vet.* **17**: 22, 1936.
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6. Beath, O. A.; Eppson, H. F., and Gilbert, C. S.: *J. Am. Pharm. A.* **26**: 394 (May) 1937.
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grams per hundred cubic centimeters.⁹ It should be added that normally human urine in nonseleniferous areas contains no selenium. Investigations as to the probable sources revealed wide occurrence of the element in foodstuffs of animal origin such as milk, eggs and meats, as well as in vegetables and cereal grains.¹⁰ Analysis of such foodstuffs from endemic areas is given in table 1. Drinking water usually contained none and in the few positive instances it did not exceed from 5 to 30 micrograms per hundred cubic centimeters.

Attempts to correlate clinical evidence of selenium intoxication with the degree of absorption as evidenced by urinary excretion did not yield definite results. Symptoms that might be considered pathognomonic of selenium poisoning could not be discovered. The incidence of vague symptoms of ill health, particularly those suggestive of gastric and hepatic disorders, appeared to be sufficiently high to indicate the probability of cause and effect.¹⁰ Urinary analysis in a series of farm animals with frank symptoms of "alkali disease" showed a selenium content varying from 61 to 300 micrograms per hundred cubic centimeters,¹¹ values well within the limits of those found in human beings from the same or similarly affected areas. Our problem, therefore, resolved itself into ascertaining, first, the relation of excreted selenium to that absorbed and, second, determining the limits of tolerance in experimental animals so that we might arrive at some conclusion as to the probable margin of safety in man and the probable effects that may be expected in case this is exceeded.

RELATION OF EXCRETED AND RETAINED SELENIUM TO THE AMOUNT INGESTED

As stated earlier, the field studies had indicated that man living in selenium-endemic areas may excrete more or less continuously as much as 200 micrograms of selenium per hundred cubic centimeters of urine. The significance of this in terms of selenium absorption was not clear until it was shown by experiments on laboratory animals that the excretion level in the urine bore a definite relationship to the amount ingested. On a uniform daily intake of selenium fed as sodium selenite over a period of months it was found that a balance was soon struck so that from 50 to 80 per cent of the amount ingested was excreted in the urine with much smaller and relatively insignificant amounts being excreted in the feces.¹² The continual feeding of small

output in the urine expressed as micrograms per hundred cubic centimeters in animals fed seleniferous wheat protein was roughly equivalent to the daily dose administered reckoned as micrograms per kilogram of body weight. Only a minor part of that ingested, probably that failing of absorption, was found in the feces, but considerable amounts were found to be retained in the tissues. The liver, kidneys, spleen, pancreas, muscles,

TABLE 2.—Incidence of Important Pathologic Manifestations

Pathologic Manifestation	Per Cent
Gastric ulcers or necrosis.....	13
Evidence of injury to the gastric mucosa.....	74
Focal destruction of liver cells and fatty degeneration.....	60
Cirrhosis of the liver.....	20
Anemia.....	50
Serous effusions.....	27
Endocarditis or focal myocardial degeneration.....	50

heart and lungs are the tissues storing the most, while bones, skin and brain store the least. Of considerable interest is its accumulation in the hair of animals chronically poisoned with naturally occurring food selenium. This is believed to be as good a criterion of the length of time an individual has been exposed to selenium and the extent of its storage in vital tissues and organs as the excretion level in the urine is an index of the daily absorption.¹⁴

On discontinuance of its administration in experimental animals the excretion level in the urine falls off rapidly in the case of inorganic compounds and more slowly when food selenium has been given, so that appreciable amounts may be found in the urine for as long as six months thereafter.¹³ This is consistent with the tendency of this type of selenium to be stored in the tissues in firm combination with the proteins from which it is but slowly released. Its concentration in the blood, which is about half that of urinary selenium during active ingestion, may amount to twice that of urinary selenium from thirty to forty days after its administration has been discontinued.¹⁴ The problem of its mobilization from the body depots awaits solution.

TOXICITY, CELLULAR CHANGES AND FUNCTIONAL DERANGEMENTS

The older literature on the pharmacology of selenium has been of little help in the present problem for it dealt mostly with the acute effects from toxic or lethal doses.¹⁵ The question of the extent of the hazard to health from continued absorption of small subtoxic amounts from food sources is a difficult one to answer. The problem is rendered even more difficult by the fact that virtually nothing is known of the chemical nature of the compound or compounds naturally occurring in foodstuffs. Several investigators have studied the effects of the continual ingestion of inorganic or food selenium when fed at various levels.¹⁶ These researches are generally in good agreement, indicating that 15 or more parts per million in the diet of the rat is toxic. At this level there is an estimated intake of about 1 to 1.5 mg. per

TABLE 1.—Analysis of Selenium in Foodstuffs as Expressed in Micrograms per Hundred Grams of Material

Foodstuff	Micrograms
Cereals.....	57 to 1,680
Vegetables.....	12 to 1,780
Milk.....	16 to 127
Eggs.....	25 to 914
Meats.....	117 to 800

daily doses of naturally occurring food selenium, as in wheat or oats, to suitable laboratory animals showed a similar relationship of output to intake, though here relatively less was excreted in the urine and more retained in the tissues.¹³ Stated briefly, the selenium

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11. Smith, Franke and Westfall.⁹ Smith.²⁵

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kilogram per day, and with inorganic selenium as sodium selenite the incidence of important pathologic manifestations given in table 2 was found.⁸

The continued ingestion of naturally occurring wheat selenium in rats at a level of from 10 to 15 parts per million with an estimated daily intake of from 1 to 1.5 mg. per kilogram showed liver injury, effusions and anemia as the most prominent pathologic manifestations.¹⁷ Higher laboratory animals appear to be more susceptible to its toxic effects. With the foregoing data as a guide many experiments were conducted on cats and rabbits with graded doses of selenium as it occurs naturally in wheat or oats over a period of many months, in order to ascertain the limits of tolerance and the character of untoward manifestations from doses exceeding the tolerated level. Gastric and hepatic functional tests, plasma bilirubin, urinary urobilinogen and hematologic studies were made from time to time in order to discover the earliest toxic manifestations. At the close of the experiment careful microscopic examinations were made of the tissues to correlate functional derangements with structural abnormalities.

or by the decreased ability to conjugate hippuric acid after the intravenous injection of sodium benzoate and is scarcely detectable by the bromsulphalein test. Abnormalities in bile pigment metabolism are usually absent. At necropsy the liver usually presents some degree of chronic interstitial hepatitis, and occasionally advanced portal cirrhosis.

5. The hematologic results with small doses may be negative or show only moderate reticulocytosis of about 5 to 10 per cent. This is most readily demonstrable in rabbits and rats and is usually a forerunner of the more definite manifestations of hypochromic microcytic anemia seen quite frequently in animals receiving larger doses.

It was pointed out earlier that in our field studies in selenium endemic areas a high incidence of symptoms suggestive of gastric disorders was encountered. We have also found a high incidence of damage to the gastric mucosa in our experimental animals, especially those receiving inorganic selenium. Moreover, some of the early investigations of Mead and Gies¹⁹ and of Jones²⁰ indicated the possibility that selenium com-

TABLE 3.—Effect of Proteins and Other Supplements on the Chronic Toxicity of Naturally Occurring Wheat Selenium

Supplement	Number of Animals	Average Weight			Mortality, Per Cent	Incidence of Pathologic Involvement, Per Cent			
		Initial	Final			Liver Cirrhosis	Anemia	Effusions	No Lesions
			Males	Females					
None, basal diet.....	14	55	115	...	67	100	64	90	0
Casein 20%.....	16	63	276	150	0	0	0	0	94
Wheat gluten 25%.....	11	50	200	155	9	0	9	0	91
Dried brewers' yeast 30%.....	13	53	195	150	0	0	0	0	100
Lactalbumin 20%.....	10	55	225	148	0	0	0	0	100
Ovalbumin 20%.....	20	53	205	155	0	0	0	0	100
Gelatin 25%.....	14	57	205	135	7	7	0	0	92
Desiccated pork liver 20%.....	17	59	280	160	30	47	30	47	53
.....	11	54	90	...	55	73	45	55	23
.....	6	48	85	...	100	100	100	80	0
.....	21	53	127	95	33	60	41	30	38

The results of this investigation, which are described in detail elsewhere,¹⁸ may be summed up as follows:

1. The susceptibility to small doses of selenium in the range of from 0.1 to 0.5 mg. per kilogram daily is quite variable. Much of this variability appears to be due to dietary factors, as will be pointed out presently. Naturally occurring wheat selenium appears somewhat less toxic than the inorganic selenite or selenate.
2. Doses in excess of 0.5 mg. per kilogram daily, which are reflected by an excretion level of 500 or more micrograms per hundred cubic centimeters in the urine, are likely to be toxic and damaging to the tissues. The pathologic effects are similar to those described for rats.
3. The smaller doses of 0.1 to 0.2 mg. per kilogram daily, reflected by an excretion level of about 100 to 200 micrograms per hundred cubic centimeters of urine, which may be tolerated for many months without untoward effects under favorable nutritional conditions, may nevertheless show evidence of hepatic dysfunction under less favorable nutritional conditions.
4. The chief symptoms of selenium intoxication in cats from the continued daily ingestion of the somewhat larger doses of from 0.3 to 0.5 mg. per kilogram are intermittent anorexia, occasional vomiting and a lowered functional efficiency of the liver. The latter is most readily demonstrable by abnormal retention of intravenously injected rose bengal, less readily by the abnormal retention of intravenously injected bilirubin

pounds might cause a serious reduction in free hydrochloric acid. Experiments on rats and cats receiving both inorganic as well as organic food selenium over periods ranging from ten to three hundred and fifteen days failed to reveal a marked or constant diminution of either free or total gastric acidity as compared with control animals.²¹ Dilute alcohol intragastrically or histamine subcutaneously or both were used in these experiments after the usual fasting period of from eighteen to twenty-four hours. These experiments fail to indicate any diagnostic value in chronic selenosis from the usual type of gastric analysis.

THE TRANSMISSION OF SELENIUM THROUGH THE PLACENTA

Transmission of selenium through the placenta was demonstrated by experiments in rats and cats in chronic poisoning with both inorganic and organic food selenium.²² More selenium was found in the tissues of the newborn when the mother's diet contained organic food selenium than when it contained sodium selenite. In rats fed seleniferous oats during the latter half of the gestation period the young, which at birth constituted approximately 28 per cent of the mother's weight, stored about 14 per cent of the mother's selenium intake.

In 1936 Franke and his co-workers demonstrated congenital malformations in chicks hatched from eggs

17. Smith and Lillie.⁸ Smith.³⁵
18. Smith, M. I.; Westfall, B. B., and Stohlman, E. F.: Studies in Chronic Selenosis, Bulletin 174, National Institute of Health, Federal Security Agency, Public Health Service, 1940, pt. 3. Smith and Lillie.⁸

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22. Westfall, B. B.; Stohlman, E. F., and Smith, M. I.: J. Pharmacol. & Exper. Therap. 64: 55 (Sept.) 1938.

of selenized hens.²³ More recently Landauer²⁴ was able to show that chronic intoxication of laying hens with seleniferous wheat resulted in more extreme effects on the progeny of Creeper females than on that of their genetically normal sibs, thus indicating that Creeper mutation exaggerates the interference with normal development produced by selenium. In our experiments we have failed to observe any such congenital malformations or developmental anomalies in the mammalian fetus even under the most rigorous conditions of mating animals of both sexes reared on seleniferous diets from the time of weaning. Young born under such conditions with the mothers continuing to be maintained on the seleniferous diets are vastly more susceptible to its toxic effects compared with normal animals placed on similar seleniferous diets at weaning, but the pathologic manifestations are qualitatively the same.

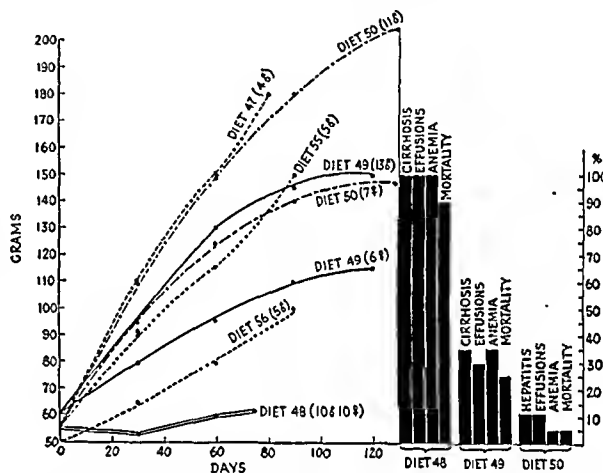
THE EFFECTS OF SELENIUM ON RESPIRATORY AND OTHER ENZYMES

The injurious effect of selenium compounds on certain of the enzymes concerned with cellular respiration was indicated in the work of Collett,²⁵ Labes and Krebs,²⁶ Potter and Elvehjem²⁷ and Stotz and Hastings.²⁸ These investigations showed an inhibition of oxygen consumption by tissues *in vitro* under the influence of sodium selenite, apparently through the poisoning of succinic dehydrogenase. Wright,²⁹ working in this laboratory with sodium selenite and sodium selenate and various tissues, such as liver, kidney, brain and muscle, found an irreversible loss of ability to oxidize naturally occurring substrates after contact with the selenium compounds in sufficient concentration. Definite inhibition of oxygen consumption could be demonstrated with concentrations of the order prevailing in the intact animal receiving a minimal lethal dose of the substance. These experiments indicated no impairment of the cytochrome-indophenol-oxidase but a general poisoning of the dehydrogenating enzymes. Reduced glutathione, which according to Hopkins and Morgan³⁰ could reactivate succinic dehydrogenase previously inactivated by oxidized glutathione, could also protect tissues against selenite provided the glutathione had been added before marked loss of oxygen consumption took place. This suggests the possibility that the injurious effects of the selenium compounds are due to the removal of sulfhydryl groups essential for the oxidative mechanism. In work with other enzyme systems an inhibiting action of selenium on urease was observed³¹ which, according to Sumner and Poland,³² is dependent for its activity on the presence of sulfhydryl groups. No inhibiting effects have been found on choline esterase, catalase or liver arginase.³¹ The last named is of particular interest, for this enzyme may be considered an index of protein metabolism.³³ Liver arginase was unaffected by inorganic selenium compounds *in vitro* and was apparently augmented in

some instances after the ingestion of seleniferous wheat.³¹ These results are consistent with the observation of Cathcart and Orr³⁴ of an increased urea and nitrogen output in the urine of dogs after the subcutaneous injection of sodium selenite and perhaps indicate a better utilization of the proteins in a compensatory manner when the carbohydrate metabolism is necessarily impaired as a result of interference with the dehydrogenation of intermediary carbohydrate metabolites.

THE INFLUENCE OF DIETARY PROTEIN ON THE CHRONIC TOXICITY OF SELENIUM

Last year experiments were reported indicating that dietary protein had a significant influence on the toxicity of naturally occurring wheat selenium in rats.³⁵ It was shown that 10 parts per million of wheat selenium fed in a diet containing 10 per cent protein was highly toxic and damaging to the tissues whereas the same amount of selenium fed in an isocaloric diet containing an additional 20 per cent protein in the form



Effects of cystine and methionine and of graded increments of protein on the chronic toxicity of sodium selenite. Experiments 56, 55 and 47 represent average weight curves of groups of rats on control non-seleniferous low protein diet (7 per cent) alone and when supplemented with cystine or with cystine and methionine respectively. Experiments 48, 49 and 50 contained 15 parts per million of selenium as sodium selenite, the first containing 7 per cent protein supplemented with cystine and methionine to a level equivalent to that of 30 per cent casein, the second containing 13 per cent protein with cystine and methionine as in the preceding and the third containing 30 per cent protein with no additional cystine or methionine. The mortality and incidence of pathologic involvement for the three sets of experiments are shown to the right.

of casein scarcely produced any toxic effects. It appeared from those experiments that within certain limits the toxicity of food selenium is determined by the protein-selenium ratio in the diet rather than by the level of intake. The data available at that time indicated that a seleniferous diet with a protein-selenium ratio of 1:100 as expressed in terms of grams of protein to micrograms of selenium per hundred grams of diet is highly toxic, while a similar seleniferous diet with a protein-selenium ratio of 1:33 or better may be tolerated with relative impunity. Recently this has received confirmation in the experiments of Lewis, Schultz and Gortner³⁶ and of Gortner.³⁷ Moxon, it should be added,³⁸ had also previously reported suggestive though inconclusive experiments of a similar nature.

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36. Lewis, H. B.; Schultz, Julius, and Gortner, R. A., Jr.: *J. Pharmacol. & Exper. Therap.* **65**: 292 (Feb.) 1940.

37. Gortner, R. A., Jr.: *J. Nutrition* **19**: 105 (Feb.) 1940.

38. Moxon, A. L.: *Alkali Disease or Selenium Poisoning*, Bulletin 311, South Dakota Agricultural Experiment Station, 1937.

We have now confirmed and extended those earlier observations to include several other proteins besides casein and to include data on the effects of protein and certain amino acids on the chronic toxicity of inorganic selenium.³⁹ These experiments are published elsewhere in detail and will be mentioned here only briefly. They have shown, as may be seen in table 3, that all the proteins examined—wheat protein, lactalbumin, ovalbumin, the proteins derived from brewers' yeast and from desiccated liver, and even the biologically inferior protein gelatin—afford protection against the toxic effects of wheat selenium. The amino acids lysine and methionine, both of which are relatively low in the wheat protein used at the 7 per cent level in the basal diet, have not shown any beneficial effect when used as supplements. Glucosamine, a substance which in some unpublished experiments has been found to antagonize intravenously injected sodium selenite to some extent, appears to have afforded also a partial protection against the chronic toxic effects of wheat selenium.

The experiments with inorganic selenium when fed at a level of 15 parts per million as sodium selenite in diets with graded increments of the protein casein with or without cystine and methionine supplements are illustrated in the accompanying chart. The composition of the experimental diets is given in table 4. They show conclusively that the degree of protection is related

TABLE 4.—Composition of Experimental Diets

TABLE 4.—Composition of Experimental Diets							
	Diet Number						
	36	35	47	48	49	50	
Casein.....	4	4	4	4	10	27	
Dried brewers' yeast.....	5	5	5	5	5	5	
McCormick's salt mixture no. 185.....	4	4	4	4	4	4	
l-Cystine.....	0	0.1	0.1	0.1	0.05	0	
dl-Methionine.....	0	0	0.5	0.5	0.3	0	
Cod liver oil.....	2	2	2	2	2	2	
Olive oil.....	8	8	8	8	8	8	
Starch.....	77	77	77	77	71	54	
Selenium as sodium selenite, parts per million	0	0	0	15	15	15	
Protein in the diet, per cent.....	7	7	7	7	13	30	

to the quantity of protein in the diet while cystine and methionine in amounts sufficient to support normal growth in rats on a low casein diet fail to mitigate the toxic effects of selenium.

The mechanism of the protein-selenium antagonism is still a matter of conjecture. It may be, as has been suggested previously, that ultimately an explanation will be found in the differential action of selenium compounds on enzymes concerned with metabolic processes.³⁵ Their inhibiting effect on certain of the respiratory enzymes, more particularly those concerned with dehydrogenation of intermediary carbohydrate metabolites, has been pointed out. Equally interesting is the failure of selenium to affect adversely liver arginase, an enzyme concerned in protein metabolism.

Whatever the explanation for this antagonism may be, it is a matter of considerable practical interest. Moreover, additional evidence has been rapidly accumulating, emphasizing the importance of dietary protein in the prevention of liver injury from other toxic agents. Goldschmidt, Vars and Ravdin⁴⁰ have recently reported a protective action conferred by high dietary protein against the liver injury quite different from chloroform, a type of liver injury quite different from

that produced by selenium.⁴¹ Miller and Whipple⁴² have similarly reported liver injury in the dog from chloroform anesthesia to increase in extent as the protein body stores were depleted. Messinger and Hawkins⁴³ also concluded that the extent of liver injury produced by arsphenamine in dogs is related to the diet and that protein is most effective in preventing it. Whether these are due to specific detoxification by protein or to accelerated regeneration of liver protein needed for repair is not certain. In the present instance the protective action of protein would seem to be a true detoxification since all the known toxic manifestations of selenium poisoning, the effusions, the anemia, the impairment of growth, as well as the liver injury, are equally prevented. The recent observations by Meyer⁴⁴ concerning an increased resistance to diphtherial toxin in rats on a diet rich in protein may also be mentioned in this connection. It is clear that the role of dietary protein in intoxications will require further elucidation.

SUMMARY AND CONCLUSIONS

Though human poisoning in selenium endemic areas from the ingestion of naturally occurring seleniferous foodstuffs has not been definitely established, the evidence of absorption of selenium in man in such areas, sometimes in amounts sufficient to cause harmful effects in experimental animals, appears to be conclusive.

The positive diagnosis of chronic endemic selenium poisoning in man is difficult. Careful consideration of the experimental data on the metabolic fate of selenium in the body and its toxicologic effects as outlined herein will suggest the clinical and laboratory procedures to be employed in the tentative diagnosis of suspected cases.

ABSTRACT OF DISCUSSION

DR. J. H. STERNER, Rochester, N. Y.: During a routine survey of potentially hazardous chemical exposures, selenium was found in the urine of a chemist who was synthesizing an organoselenium compound. In the subsequent studies the advice and help of Dr. Smith and his associates have been invaluable, and I want to take this opportunity to express our appreciation. His comprehensive paper on the toxicology of selenium is so adequate that I shall confine my remarks to a few supplementary studies. Chemists synthesizing methylbenzoselenazoles absorbed and excreted in the urine considerable amounts of selenium. Protective devices such as rubber and synthetic rubber gloves give only temporary protection, as the compound readily penetrates them. By requiring frequent changes of new gloves, protective cream and scrupulous care in handling, the absorption has been materially lessened, but complete prevention of such absorption and excretion is not yet accomplished. There have been no symptoms or signs suggestive of toxic effects in any of the workmen so exposed, nor have serial comprehensive blood studies or hepatic and renal function tests indicated any injury. In one case the urinary excretion averaged 5 mg. of selenium a day for a period of a week; I believe this is a greater amount than has been reported previously in the human being. To demonstrate the skin absorption I dropped 0.1 cc. of the selenazoles (the vapor pressure is negligible) containing about 50 mg. of selenium on my hands, removing it by thorough scrubbing after thirty minutes. During the next four days over 5 mg. of selenium was excreted in the urine, with trace amounts only in the stools. Animal studies have shown the low toxicity

39. Smith, M. I., and Stohman, E. F.: *J. Pharmacol. & Exper. Therap.* 70: 270 (Nov.) 1940.
40. Goldschmidt, S.; Vars, H. M., and Ravdin, I. S.: *J. Clin. Investigation* 18: 277 (May) 1939.

41. Lillie, R. D., and Smith, M. I.: *Am. J. Path.* 16: 223 (March) 1940.
42. Miller, L. L., and Whipple, G. H.: *Am. J. M. Sc.* 199: 294 (Feb.) 1940.
43. Messinger, W. J., and Hawkins, W. B.: *Am. J. M. Sc.* 199: 216 (Feb.) 1940.
44. Meyer, A. R.: *Proc. Soc. Exper. Biol. & Med.* 41: 404 (June) 1939.

of selenium as the selenazole compared with the inorganic selenate; the LD₅₀ dose for both mice and rats is about 120-130 mg. per kilogram, while that for sodium selenate is 3-5 mg. (Se) per kilogram. The rapidity of excretion may partly explain the low toxicity. In animals, 80 to 90 per cent of the intramuscularly injected selenium (as selenazole) is recovered in the urine within forty-eight hours after injection. The retention of selenium in the tissues after selenazole absorption is small in contrast with that of inorganic selenium compounds or the naturally occurring organic ones. The tissues of rats killed one week after the last daily injection of five successive doses of 5 mg. each contained a total of 10 to 15 micrograms in the liver, traces in the kidney, none in other tissues (including the muscle site of injection).

SURGICAL METHODS FOR RELIEF OF PAIN

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Cancer is only too frequently accompanied by intractable pain. Should reliance be placed on morphine and its derivatives to allay suffering, or should an attempt be made to relieve the pain by blocking afferent pathways leading from the involved area? The pain from cancer is constant and harrowing without surcease by night or day. Relief afforded by morphine is intermittent; pain ceases when the drug takes hold, then reappears. The patient bears with it as long as he can, then begs for more morphine. But section of afferent pathways, carefully planned and properly performed, can result in complete and permanent relief of pain.

Unfortunately, however, the problem is not as simple as it seems. The methods at one's disposal for the relief of pain are not completely satisfactory. Chordotomy, rhizotomy, section of the branches or sensory root of the trigeminal nerve or injection of alcohol into the spinal subarachnoid space all involve the patient in definite hazards. Chordotomy, rhizotomy or section of the trigeminal root imply a major surgical operation with its attendant risks in persons already debilitated by malignant disease. The anterolateral columns lie adjacent to the pyramidal tracts. A badly placed incision in the cord can result in motor weakness in the extremities. Furthermore, bilateral chordotomy is followed in at least 10 per cent of cases by urinary retention, temporary or permanent. Rhizotomy causes complete loss of all modalities of sensation. If it is performed for pain in the arm due to involvement of the brachial plexus consequent on metastasis from mammary cancer, the arm and hand are rendered useless, for although they can be moved no sense of their position remains. Subarachnoid injection of alcohol may paralyze motor as well as sensory nerves and cause urinary retention or weakness in the lower extremities.

The problem of relief of pain is further complicated by the spread of the cancer with the involvement of afferent pathways adjacent to those severed. A uterine or prostatic cancer may cause intense pain in one flank or down one leg. A unilateral chordotomy or subarachnoid alcohol block may give relief for two or three months. Then, as the growth spreads, equally severe distress may appear on the opposite side.

From the practical standpoint, therefore, the decision to attempt to relieve pain by blocking afferent pathways must rest on a number of factors: the position and rapidity of growth of the cancer; the probable period of life expectancy of the patient; the amount and location of the pain; the patient's reaction to it, and the dosage of opium necessary for its control. Finally the patient's general condition as an operative risk requires careful consideration before radical surgical intervention is proposed. Roentgenograms of the chest should always be taken to determine the presence or absence of pulmonary metastases. If the lungs are involved or if the sufferer's general physical condition suggests a life expectancy of less than three months radical surgical intervention should not be attempted unless the pain is devastating. Under such conditions an attempt to block afferent pathways by the injection of alcohol into the subarachnoid space or further recourse to morphine is indicated.

The purpose of this article is to show what can be done for relief of pain by interruption of sensory pathways, the hazards involved and what justification exists for suggesting these procedures rather than continuing

TABLE 1.—Cancer of Maxillary Antrum and Upper Jaw

		No. of Cases
Total cases.....		40
Pain relieved.....		26
Pain partially relieved.....		6
Pain not relieved.....		6
Died.....		2
Treatment	Results	
Alcohol injection 27 cases	2d division	16 cases
		Pain relieved..... 11
		Pain not relieved..... 5
	3d division	3 cases
		Pain relieved..... 2
		Pain not relieved..... 1
	2d and 3d divisions	8 cases
		Pain relieved..... 5
		Pain 69% relieved..... 3
Intracranial neurectomy, 2d and 3d divisions, 6 cases		Pain relieved..... 2
		Pain 75% relieved..... 3
		Died..... 1
Avulsion of sensory root, 7 cases.....		Pain relieved..... 6
		Died..... 1

with morphine or dilaudid hydrochloride sedation. Three groups of patients have been selected: those with pain in the face and neck due to cancer of the face, jaw, mouth and sinuses with or without metastases to the cervical glands; those with pain in the arm from mammary cancer or axillary or supraclavicular metastases involving the brachial plexus, and lastly a group with abdominal or pelvic disease producing pain anywhere below the ensiform process.

In the first group the afferent pathways involved comprise the trigeminal and glossopharyngeal nerves and the upper four or five cervical posterior roots. Pain within the trigeminal distribution can be handled by blocking its various branches or sectioning the posterior root. If the growth is in the base of the tongue or tonsillar pillars so that swallowing is painful, the glossopharyngeal nerve must also be sectioned. Extension of the pain into the neck demands cervical rhizotomy. The only pain accompanying cancer of the head and neck which cannot be alleviated by block of the appropriate afferent pathways is that which is referred deep in the ear.

In this group are included one hundred and eight alcohol injections into one or more of the divisions of the trigeminal nerve and forty-nine operative procedures directed against the fifth and/or ninth cranial nerves with or without cervical root section. Reference to

TABLE 2.—*Cancer of Ethmoid and Sphenoid Sinuses, Cheek and Skin*

		No. of Cases
Ethmoid and sphenoid sinuses.....		5
Pain relieved.....		1
Pain partially relieved.....		1
Pain not relieved.....		3
Cheek, skin.....		10
Pain relieved.....		14
Pain not relieved.....		3
Died.....		2
Treatment		Results
Alcohol injection, 2d division fifth cranial nerve, 2 cases		Pain not relieved..... 2
Avulsion of sensory root of fifth nerve, 3 cases		Pain relieved..... 1
		Pain partially relieved..... 1
		Pain not relieved..... 1
Alcohol injection, 11 cases	2d division	7 cases
		Pain relieved..... 5
		Pain not relieved..... 2
	2d and 3d division	4 cases
		Pain relieved..... 3
		Pain not relieved..... 1
Intracranial neurectomy, 2d and 3d division, 2 cases		Pain relieved..... 2
Avulsion of sensory root of 5th nerve, 6 cases		Pain relieved..... 4
		Died..... 2

tables 1 to 6 will show the results of various methods of attack on afferent pathways leading from malignant disease in different areas of the face and neck. As might be expected, cancer situated within the sensory area supplied by the second division of the fifth cranial nerve was most successfully handled; first because the central position within the sensory area of this nerve

TABLE 3.—*Cancer of Mandible*

		No. of Cases
Total cases.....		27
Pain relieved.....		17
Pain not relieved.....		8
Died.....		2
Treatment		Results
Alcohol injection, 21 cases	3d division	14 cases
		Pain relieved..... 9
		Pain not relieved..... 5
	Inferior dental and lingual nerves	1 case
		Pain not relieved..... 1
	2d and 3d divisions	6 cases
		Pain relieved..... 4
		Pain not relieved..... 2
Avulsion of sensory root, 6 cases		Pain relieved..... 4
		Died..... 2

allows for an ample surrounding area of anesthesia if the whole root is cut, and hence the growth must spread wide and rapidly to reach a sensitive zone; and second because in the surgeon's hands the second division of the trigeminal nerve can be more accurately blocked than the third. Alcohol block of the second and third divisions may be more difficult when a neoplasm is present. Not infrequently the cancer may dislodge the nerve from its normal anatomic position. Cancer of the side of the tongue, floor of the mouth or tonsil pro-

duced pain which was difficult to relieve until Fay,¹ Stookey² and Dandy³ showed that severing the ninth and upper cervical roots in addition to the fifth gave excellent results. A unilateral suboccipital craniectomy with or without midline extension depending on the need for cervical rhizotomy must be performed in these cases. Recently in 10 consecutive cases I have substituted section of the descending root of the fifth nerve in the medulla as suggested by Sjöqvist⁴ (medullary tractotomy) for section at the pons. In 9 of the patients the consequent relief of pain was highly gratifying. In table 6 all operative procedures are grouped together whether a transtemporal approach to the sensory root of the trigeminal nerve or a unilateral suboccipital approach to the fifth, ninth and upper cervical posterior roots was performed. The operative mortality is high (18 per cent), but the percentage of complete relief from pain (80 per cent) is satisfactory. Many poor operative risks were accepted in this group, which fact accounts for the high mortality.

TABLE 4.—*Cancer of Cheek, Mucous Membrane and Tongue*

		No. of Cases
Cheek, mucous membrane.....		8
Pain relieved.....		4
Pain partially relieved.....		2
Pain not relieved.....		2
Tongue.....		16
Pain relieved.....		9
Pain partially relieved.....		5
Pain not relieved.....		2
Treatment		Results
Alcohol injection, 8 cases	2d division	8 cases
		Pain relieved..... 4
		Pain 50% relieved..... 2
		Pain not relieved..... 2
Alcohol injection, 16 cases	3d division	10 cases
		Pain relieved..... 7
		Pain partially relieved... 2
		Pain not relieved..... 1
	Inferior dental and lingual nerves	2 cases
		Pain partially relieved... 2
	2d and 3d divisions	4 cases
		Pain relieved..... 3
		Pain not relieved..... 1

Cancer of the breast with metastatic spread into the brachial plexus above or below the clavicle is included in the second group of cases. Direct injection into the plexus of alcohol has never been successful in my experience. High chordotomy at the third cervical segment has been carried out on three occasions but only once with satisfactory relief of pain. This should be the operation of choice, for the sense of touch and position in the arm and hand is spared and its usefulness unimpaired. The last 3 patients under my observation with axillary metastasis causing pain in the arm had pulmonary metastasis as well and consequent loss of movement of the diaphragm. A high cervical chordotomy seemed therefore contraindicated, for the motor pathways to the still functioning diaphragm might be damaged. Rhizotomy of the posterior spinal roots from

1. Fay, Temple: Observations and Results from Intracranial Section of Glossopharyngeus and Vagus Nerves in Man, *J. Neurol. & Psychopath.* 8: 110 (Oct.) 1927.
2. Stookey, Byron: Glossopharyngeal Neuralgia: Surgical Treatment, with Remarks on the Distribution of the Glossopharyngeal Nerve, *Arch. Neurol. & Psychiat.* 20: 702 (Oct.) 1928.
3. Dandy, W. E.: Operative Relief from Pain in Lesions of the Mouth, Tongue and Throat, *Arch. Surg.* 19: 143 (July) 1929.
4. Sjöqvist, O.: Studies on Pain Conduction in Trigeminal Nerve: Contribution to Surgical Treatment of Facial Pain, *Acta psychiat. et neurol.*, 1938, suppl. 17, p. 1.

the third cervical to the second thoracic segment seems the operation of choice. This is not an altogether satisfactory procedure because it necessitates a wide laminectomy of seven vertebrae and the section of eight posterior nerve roots, a serious operation on a debilitated patient. Interruption of this number of roots is essential for complete relief of pain. If fewer roots are cut the area of anesthesia may not be sufficiently extensive to relieve the pain completely. Furthermore, as has been stated, the hand and arm are entirely insensitive and completely useless. As soon as the patient is up and around after the operation, the arm should be supported in a sling. Unless this detail is carried out the dead arm drags on the neck and shoulder, annoys the patient and may cause a dull ache in the neck and back. In this series fifteen cervicothoracic rhizotomies have been performed with two fatalities. In 8 cases the pain was entirely relieved; in 5 pain reappeared in the supraclavicular area because of the upward spread of the cancer.

Pain due to malignant disease referred to any area below the ensiform process is most effectively relieved

TABLE 5.—Cancer of Base of Tongue, Tonsil and Neck

	No. of Cases
Base of tongue and tonsil.....	36
Pain relieved.....	7
Pain partially relieved.....	9
Pain not relieved.....	17
Died.....	3
Neck.....	6
Pain relieved.....	5
Pain partially relieved.....	1
Treatment	Results
Alcohol Injection, 3d division, 23 cases	Pain not relieved..... 16
	Pain partially relieved... 8
Avulsion of sensory root, 5 cases.....	Pain relieved..... 1
	Pain partially relieved... 1
	Pain not relieved..... 2
	Died..... 1
Avulsion of 5th and 9th nerves, 8 cases.	Pain relieved..... 6
	Died..... 2
Cervical rhizotomy; posterior cervical roots of 1st to 5th cranial nerves, 6 cases	Pain relieved..... 5
	Pain partially relieved... 1

by unilateral or bilateral section of the anterolateral columns of the spinal cord (chordotomy). The segregation of afferent pain fibers in the anterolateral columns of the spinal cord was suggested by Spiller⁵ in 1905, and their section for relief of pain, first carried out by Martin⁶ at his suggestion in 1912. Frazier⁷ published the first large series of cases in which pain was relieved by this means.

Chordotomy is an ideal operation when the incision is limited solely to the anterolateral columns of the spinal cord. The hazards connected with the procedure are that the pyramidal tracts lying posterior to the anterolateral columns may be involved with consequent motor weakness in the legs; that the pain tracts may not be completely severed if the section is not carried to the proper depth and hence relief of pain is not complete, and that if bilateral chordotomy is done these

hazards are doubled and, in addition, if the section is carried too far anteriorly on both sides the fibers mediating sphincter control may be damaged, with retention of urine as a further complication. However, the landmarks for the section of the anterolateral columns are

TABLE 6.—Total Series

Face, mouth, neck.....	121 cases	157 procedures
Alcohol injection in 2d and 3d cranial nerves; 2d or 3d division of fifth nerve.....		108 cases
Pain relieved.....	53 cases	50%
Pain partially relieved.....	17 cases	15%
Pain not relieved.....	38 cases	35%
Total 70 cases		
Operations on fifth and/or ninth nerve and/or cervical rhizotomy....	49	
Pain relieved.....	32 cases	80 % relieved
Pain partially relieved.....	5 cases	12.5% partially relieved
Pain not relieved.....	3 cases	7.5% not relieved
Died.....	9 cases	18 % mortality

TABLE 7.—Analysis of Results After Chordotomy for Relief of Pain

106 patients (49 women, 57 men).....	109 chordotomies
Bilateral chordotomy	54
Unilateral chordotomy	55
	Number Per Cent
Completely relieved	63 70
75% relieved (8 recurrences opposite side).....	16 16.5
50% relieved (6 recurrences opposite side).....	9 9
Not relieved	4 4.5
Died	12 11

definite, the point of the attachment of the dentate shows the level of the anterior border of the pyramidal tracts and with experience motor weakness should always be avoided. Furthermore, with the use of local anesthesia (section of the tracts is not painful) and with repeated testing of the sensory level as the incision is deepened the necessity for too extensive section can be easily avoided. When the sensory level as determined by

TABLE 8.—Summary of Types of Painful Lesions Requiring Chordotomy

Cancer of urogenital tract or genitalia....	61
Cancer of vertebrae	19
Gunshot wounds of spine.....	4
Retroperitoneal sarcoma	2
Other causes	20

TABLE 9.—Complications After Bilateral Chordotomy

Vomiting	12
Distention	14
Retention of urine.....	23
(Eight patients had cancer of bladder, four had previous sub-arachnoid alcohol injection)	
Motor weakness	9
Died	7
Meningitis	2
Shock	2
Cachexia	3

immediate tests on the operating table is above the area to which the pain is referred, the incision into the cord is of sufficient depth. A unilateral chordotomy is always to be preferred to bilateral section. However, nice judgment is required in reaching this decision. Particularly is this true when the cancer involves the genital or urinary tract. While the pain may be unilateral when the patient is first seen, experience with this problem soon shows that as the cancer spreads the opposite side may become involved. A careful

5. Spiller, W. B.: The Occasional Clinical Resemblance Between Caries of the Vertebrae and Lumbosacral Syringomyelia, and the Location Within the Spinal Cord of the Fibers for the Sensations of Pain, and Temperature, Univ. Pennsylvania M. Bull. 18:147, 1905-1906.
6. Spiller, W. B., and Martin, Edward: The Treatment of Persistent Pain of Organic Origin in the Lower Part of the Body by Division of the Anterolateral Column of the Spinal Cord, J. A. M. A. 58:1429 (May 18) 1912.
7. Frazier, C. H.: Section of the Anterolateral Columns of the Spinal Cord for the Relief of Pain, Arch. Neurol. & Psychiat. 4:137 (Aug.) 1920.

estimation should be made of the exact location and radiation of the pain. Only too often patients complain bitterly of pain in one flank or leg, but after repeated and detailed questioning they finally admit that, while the major pain is on one side, occasional twinges are noted on the other. A unilateral chordotomy or subarachnoid block may completely relieve this major pain, but within six or eight weeks the minor contralateral pain hitherto unnoticed now reaches major proportions. My own experience is that unilateral chordotomy should be done and repeated on the opposite side if this situation occurs. The patient's family should always be warned that this may be necessary if an increase in the size of the growth causes spread of the pain or if the original pain was bilateral although referred chiefly to one side.



Fig. 1.—Patient with sarcoma of the parotid gland with pain in the distribution of the trigeminal nerve. Complete relief occurred after section of the descending sensory root of the fifth cranial nerve in the medulla (medullary tractotomy).

Taylor^s has shown that a unilateral laminectomy can easily be done. At present I perform a unilateral laminectomy of the second and third thoracic vertebrae. The muscles on one side only are separated from the spines. Ample exposure for section of the cord at the third or fourth thoracic segment can thus be obtained. Since the muscles on one side alone are disturbed postoperative pain and disability are greatly decreased. For bilateral chordotomy the first to the fourth spines and laminae are removed and sections made at the second thoracic segment on one side and the fourth on the other. If a section is made at exactly the same level on each side a transverse myelitis can occur.

^s Taylor, A. S.: Unilateral Laminectomy, *J. Nerv. & Ment. Dis.* 29: 257, 1910.

Tables 7 to 10 give the statistical results with unilateral and bilateral chordotomy.

Injection of absolute alcohol into the subarachnoid space has been performed one or more times on 31 patients. In 15 cases relief of pain was satisfactory, in 6 the relief was partial, and ten injections were

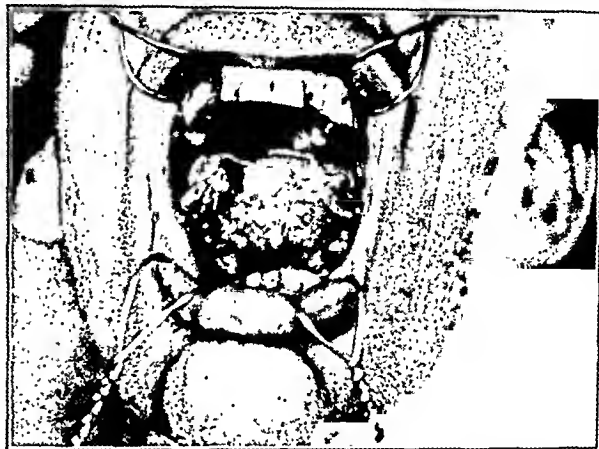


Fig. 2.—Lesion at the base of the tongue requiring section of the fifth and ninth nerves and upper cervical roots for relief.

entirely unsuccessful. In a patient in whom the alcohol (12 minims [0.74 cc.]) was introduced into the mid-thoracic region a partial weakness of one leg developed and persisted for about a year. A second patient had partial paralysis of both legs and complete relaxation of the sphincters after the introduction of 16 minims (1 cc.) of absolute alcohol into the lumbar subarachnoid space. Pain in this case was unaffected.

In the past years unilateral chordotomy has only rarely produced loss of sphincter control. However, recently in 3 of 4 cases in which unilateral chordotomy was performed after unsuccessful attempts to relieve the pain by injection of alcohol into the subarachnoid space, sphincter control was lost. In 2 patients return of function occurred within a month, but the third seems to have suffered permanent damage. The alcohol injections interfere with

sphincter control on the side to which the pain is referred without necessarily relieving the pain. If now a chordotomy is carried out, of course on the contralateral side, the sphincter fibers on this side may be damaged and the result may be complete loss of sphincter tone.



Fig. 3.—Same patient as in figure 2 with anesthesia produced by the procedure outlined. Complete relief of pain.

this operation whereas Tönnis⁸ and Dott⁹ have reported successful outcomes by simply covering the aneurysm with muscle tissue. All the methods mentioned leave much to be desired either because of limited applicability or effectiveness or because of the severity of complications.

A new operative approach has now become available as a complement to existing methods through the work of Blakemore and King¹⁰ on the treatment of aneurysm of the aorta. They devised a practical, successful way to introduce wire into the aortic aneurysm and induce clotting by electrothermic coagulation. The practicability of the procedure depends on the observation by Blakemore and King that fast moving blood will not clot when the wire is heated, whereas the slower moving blood outside the main current will clot. The unusually good results obtained by these workers suggested the application of the method in treatment of aneurysms of the internal carotid artery within the skull. This has been accomplished in the following case:

REPORT OF CASE

The patient's first admission was on April 17, 1937, and her last discharge on Oct. 31, 1939.

History.—R. K., a Jewish schoolgirl aged 15, first appeared at the Vanderbilt Clinic, Sept. 25, 1936, complaining chiefly of diplopia, nausea and vomiting for five months. The family history and personal history were noncontributory. Her previous health and illnesses were irrelevant except for a brief unexplained convulsion as a baby and momentary generalized headaches every one to three months for the four years preceding the present illness, to which the patient paid no attention. The menses were normal, regular every twenty-eight days and moderate. The best and the present weight was 127 pounds (57.6 Kg.).



Fig. 1.—Lateral view of skull, March 17, 1938, showing status of sella turcica just prior to ligation of both common carotids.

The patient was in perfect health, an athletic, vigorous schoolgirl five months before she was seen. At that time, during

8. Tönnis, W.: Erfolgreiche Behandlung eines Aneurysmas der Art. commun. ant. cerebri. *Zentralbl. f. Neurochir.* 1: 39 (Aug.) 1936.

9. Dott, N. M.: Intracranial Aneurysms: Cerebral Arteriography; Surgical Treatment. *Tr. Med.-Chir. Soc. Edinburgh*, 1932-1933, p. 219; in *Edinburgh M. J.*, December 1933.

10. Blakemore, A. H., and King, B. G.: Electrothermic Coagulation of Aortic Aneurysms. *J. A. M. A.* 111: 1821 (Nov. 12) 1935.

a vigorous game of handball, she was suddenly seized by a severe pain in the right orbit and right temporal region. Despite bed rest the headache remained intense. Two days after onset, diplopia occurred when she looked to the right and there was persistent nausea and vomiting. An appendectomy was performed at a neighborhood hospital. Symptoms slowly improved during the next five weeks, but after a few weeks in the

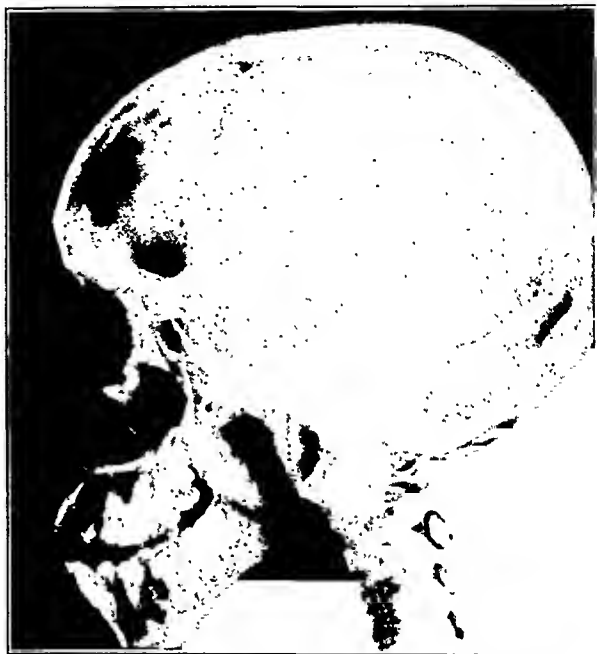


Fig. 2.—Lateral view of skull, Dec. 8, 1938, showing spread of destruction within the sella turcica and into sphenoid sinuses, despite ligation of both common carotid arteries.

country the headache and diplopia returned plus paresthesias of the face and right side of the body, causing the patient to come to the Vanderbilt Clinic five months after onset. The only positive finding on physical examination was a right pupil slightly greater than the left, and questionable hyperesthesia of the right side of the face. Stereocentgenograms of the skull showed no abnormality. No diagnosis was made. A sudden remission of all symptoms except the diplopia then occurred and lasted until April 1937, one year after onset. Severe headaches now reappeared in the right temporal region and also in the occipital area. The patient reappeared in the clinic and was admitted to the Neurological Institute.

First Admission to the Neurological Institute (from April 17 to May 18, 1937).—Physical examination showed that at this time the patient, aged 16, was well developed and well nourished and appeared in good health. The blood pressure was 114 systolic, 74 diastolic. She weighed 127 pounds. There were diplopia, ptosis of the right upper lid, paralysis of the right abducens, paresis of the levator and superior oblique muscles on the right and weakness of the right internal and superior rectus muscles; the right pupil was slightly larger than the left; the fundi and visual fields (involvement of third, fourth and sixth cranial nerves on the right) were normal. There was also a small area of numbness, hyperesthesia and hyperalgesia on the right side of the face from the lateral side of the nose below the eye and over the maxilla along the zygoma to the ear. The thyroid was normal. The rest of the physical examination was negative.

Laboratory examination showed hemoglobin 74 per cent, red blood cells 4,120,000, white blood cells 8,900, polymorphonuclear leukocytes 61 per cent and blood urea nitrogen 10 mg. per hundred cubic centimeters. Fasting blood sugar was 85 mg. per hundred cubic centimeters. The urine showed no abnormalities; the blood Wassermann reaction was negative (both antigens). Spinal fluid was at a pressure of 386 mm. of water. The gold curve was 110000000. The Wassermann reaction of

the spinal fluid was negative; analysis showed lymphocytes 2, globulin 0, protein 13 mg. per hundred cubic centimeters. Roentgenograms of the skull (Dr. C. G. Dyke) showed atrophy of the anterior and posterior clinoids with destruction of the lateral and inferior wall of the right optic foramen to coalesce with the superior orbital fissure. Encephalograms (Dr. Dyke) after injection of 60 cc. of oxygen showed that the cisterna chiasmatis, particularly on the right side, was lifted up by a

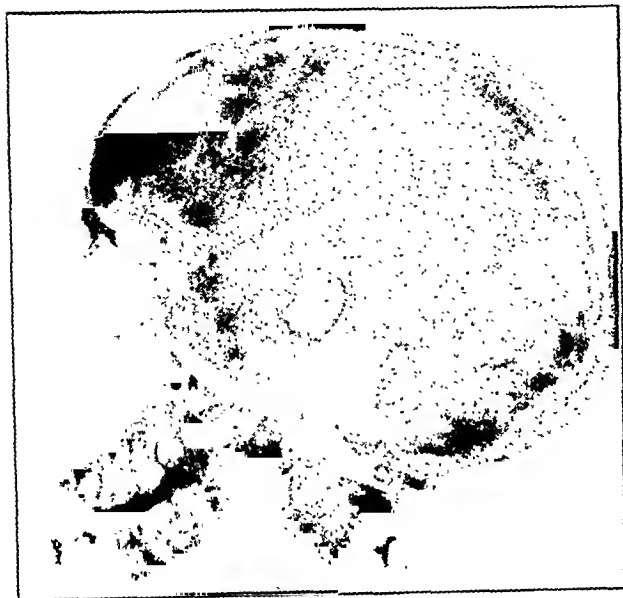


Fig. 3.—Lateral view of skull, Oct. 21, 1939, showing no further spread of area of destruction within the skull since examination April 13, 1939 (fig. 5).

small mass, thought to be an aneurysm of the right internal carotid artery. The olfactory test gave negative results and audiograms were normal.

A metal clip was placed by Dr. Deery on the right internal carotid artery in the neck and partly closed May 14. The closure was completed five days later. Symptoms did not improve during her two weeks in the hospital after the operation.

June 21 the patient paid a follow-up visit to the clinic. She now complained of amenorrhea since her operation (gynecologic examination revealed no pathologic condition at this time), anorexia, loss of weight and strength, constipation and mild pain in the lower abdominal region. There was also some nausea and "dizziness" when she sat erect.

*Second Admission to the Neurological Institute (from June 25 to 27, 1937).—*The patient by now appeared sallow, pale and chronically ill. A bruit synchronous with the pulse was heard over the right eye. Otherwise the examination was as before. The blood pressure was 120 systolic, 70 diastolic, and she weighed 116 pounds (52.6 Kg.). The laboratory observations were noncontributory. The patient was discharged without especial treatment.

A second remission occurred for three months, until September 12, seventeen months after onset, when the appearance of persistent vomiting and the return of her previous symptoms led to her first admission in Presbyterian Hospital for an investigation of the gastrointestinal tract. No abnormalities different from those already mentioned were noted.

The patient complained once that her right eye was "bulging," at which time a bruit was heard. Both the bulging and the bruit disappeared and the patient was discharged, October 18, much improved.

*Third Admission to the Neurological Institute (from Dec. 7 to 21, 1937).—*This admission was arranged because of the return of all her symptoms a short time after discharge from the Presbyterian Hospital.

The patient was now too weak to walk. The rest of her conditions were as brought out before. She weighed 112 pounds (51 Kg.). The spinal fluid pressure was 450 mm. of water.

Laboratory examinations showed hemoglobin 72 per cent and red blood cells 3,920,000; the white blood cell and differential

counts were normal. The urine was normal except for a faint trace of albumin; microscopically there were a few hyaline casts. Blood urea nitrogen was 14 mg. per hundred cubic centimeters. The fasting blood sugar was 85 mg. per hundred cubic centimeters. The spinal fluid was normal as before. Roentgenograms of the skull (Dr. Dyke) in the anteroposterior and the postero-anterior position and right stereoroentgenograms now showed the entire right clinoid process to be destroyed and the right half of the tuberculum sellae to be eroded. The left anterior clinoid process appeared rather sharp and the posterior clinoids and dorsum were slightly atrophic. The pineal was in the midline and normal. Encephalograms (Dr. Dyke) after the injection of 60 cc. of oxygen now showed that the right side of the cisterna interpeduncularis was more markedly displaced upward than before. The sella turcica had increased in size since the first examination and the right anterior clinoid process was markedly decalcified and displaced upward. The impression was that there was an aneurysm of the right internal carotid artery progressing despite ligation of the homolateral artery in the neck.

Eye consultation showed no progression of the optic changes previously described. Visual fields were normal; the exophthalmometer readings were 20 mm. for each eye at 110 mm., probably normal. No further therapy of the aneurysm was considered, so the patient was transferred to the Presbyterian Hospital for treatment of the persistent nausea and vomiting of all she ate.

*Second Admission to the Presbyterian Hospital (from Jan. 8 to June 17, 1938).—*On physical examination the patient was very pale, almost waxen colored, and dehydrated, with a red tongue and dry lips. Examination otherwise was as before except for a soft systolic murmur at the base of the heart.

An electrocardiogram showed the T wave iso-electric, in leads 2 and 4 and inverted in lead 3, indicative of some heart muscle damage. The circulation time was twenty-seven seconds (decholin). The blood Wassermann reaction was negative. The blood group was O; the basal metabolic rate was from -30 to -43 . X-ray examinations of the chest, abdomen and gastrointestinal tract were negative. Gastric expression with histamine was normal. The fasting blood sugar was 73 mg. per hundred cubic centimeters. Complete blood partition showed normal values.

The diagnosis of Simmonds' disease due to destruction of the anterior hypophysis within the sella by pressure of the aneurysm was made in view of the complete syndrome—amenorrhea, anorexia and vomiting, loss of weight, a basal metabolic rate of -43 , flat dextrose tolerance curve and low blood pressure (most readings less than 100 systolic during her stay).



Fig. 4.—Views of orbit (courtesy Dr. Raymond Pfeiffer), Dec. 7, 1938, showing defect in lateral aspect of posterior wall of right orbit, normal optic canal in left orbit.

Attempts at treatment of this syndrome with thyroid, adrenal cortex extract and anterior hypophysial extract were uniformly unsuccessful as judged subjectively, by examination, blood pressure, basal metabolic rate and dextrose tolerance tests. Thyroid caused severe toxic symptoms before much alteration of the basal metabolic rate had occurred. Adrenal cortex extract showed no effect. Progressively increasing doses of anterior hypophysial growth extract resulted in no change, the attempt being abandoned when the largest dose, of 30 cc., resulted in

immediate collapse and shock. The vision in the right eye was at first blurred. A persistent bruit synchronous with the pulse was heard over the nonpulsating right eye globe. Exophthalmometer readings showed the appearance of exophthalmos, 28 mm. for the right eye and 23 mm. for the left eye. X-ray films of the orbit (Dr. Raymond Pfeiffer of the Institute of Ophthalmology) showed an advance of the area of orbital obstruction (fig. 4) as well as destruction of the base of the skull, forming a large defect at the orifice of the right carotid canal merging with the foramen lacerum. The changes in the region of the sella were further increased (fig. 1).

In view of the advance of the aneurysm, further ligation of the carotid arteries was carried out in four stages by Dr. J. M. Hanford of the Second surgical division. The first stage was done, February 24, by ligation of the right external carotid and superior thyroid arteries; the second stage, April 7, by partial occlusion by a Matas-Allen band of the common carotid artery; the third stage, April 15, by ligation of the left external carotid and left superior thyroid arteries, and the fourth stage, April 26, by an attempt at complete occlusion of the left common carotid artery, but immediate loss of consciousness prevented this. On June 1 the procedure was completed uneventfully, two years and two months after the first symptom.

The vision in the right eye, which had been blurred on entry, was noted to be absent May 1, with blurring of vision on the left. The patient's food intake ranged from 500 to 1,300 calories every day, averaging about 800 calories. The blood pressure ranged from 88 systolic, 68 diastolic, to 112 systolic, 84 diastolic, but was on the low side at discharge at the end of June 1938, at which time the patient's weight was 98 pounds (44.5 Kg.). Headaches were less severe and vomiting had mostly ceased, but weakness and a chalky pallor persisted. There was no return of the menses.

Third Admission to the Presbyterian Hospital (from Aug. 2 to 10, 1938).—The patient was admitted for a check-up and also because of eponychia of both great toes, one and one-half months after operation. There was a gain in weight of 8 pounds (3.6 Kg.). The patient was bedridden but without symptoms except for pain in the upper part of the back left side of the neck and the suboccipital region for one-half hour daily. Blue spots were noted daily and two episodes of blurred vision. The menses had not returned. There was optic atrophy of the right disk.

Improvement continued. By October 22, four months after the last operation, she had gained 21 pounds (9.5 Kg.) and weighed 127 pounds (57.6 Kg.). The basal metabolic rate was -23. The visual fields, however, in November showed marked impingement of the left temporal field of vision and no light perception on the right.

Fourth Admission to Presbyterian Hospital (from Dec. 6 to 23, 1938).—This admission was arranged to check again the status of the patient in view of her improvement. She now complained that the previously noted left suboccipital pain was steady throughout the day, worse on awakening.

Physical examination revealed the same conditions as before with the same striking pallor. There was a definite gain in weight, so much so that the patient now looked slightly overweight. The blood pressure was 100 systolic, 70 diastolic.

X-ray films of the skull (fig. 2) and of the orbit (fig. 4) were interpreted by Drs. Dyke, Swenson and Ball as indicating growth of the aneurysm, despite the ligation of both common carotid arteries. The aneurysm was noted to be eroding into the sphenoid sinuses. The likelihood of infection or rupture from this development made further attack on the aneurysm imperative. Electrothermic coagulation of the aneurysm by the introduction of a wire into the lumen of the aneurysm was proposed. In view of the decided degree of hypophyseal insufficiency, it was felt that the patient would not be able to stand the trauma of a craniotomy. It was decided to insert the wire into the aneurysm through the orbital defect on the right. The patient went home for three weeks, to return for this procedure.

Fifth Admission to the Presbyterian Hospital (from Jan. 20 to March 11, 1939).—Jan. 21, 1939, two years and nine months after the first symptom, wiring of the aneurysm was carried out by Dr. Blakemore and the procedure on the eye by Dr.

W. P. McGuire of the Institute of Ophthalmology. The technic follows that described previously.¹⁰ The operative note follows: Under procaine hydrochloride anesthesia an incision was made through the lateral canthus of the right eye. Anesthetic solution was introduced into the orbital tissues. The eye was displaced medially. This gave access to the aneurysm, which had eroded the posterior orbit. Thirty feet of No. 34 gage coin silver enameled wire was introduced into the aneurysm through a special needle. The velocity of blood flow through the aneurysm was measured and found to be low. The wire was heated to an average temperature of 80 C. for a total of forty seconds. The aneurysm no longer bled when the needle was cleared at the conclusion of the operation.

Following operation there was progressive diminution of the vision of the left eye. One week after operation the pupil became fixed in dilatation with amblyopia and loss of the pupillary reflex. The fundus was negative at first but optic atrophy soon supervened. Other complications were the development of mild dehydration in the second week and in the third week the siting suturing of the right eyelid by Dr. McGuire, a pro-appearance of a pinpoint corneal perforation on the right, neces-

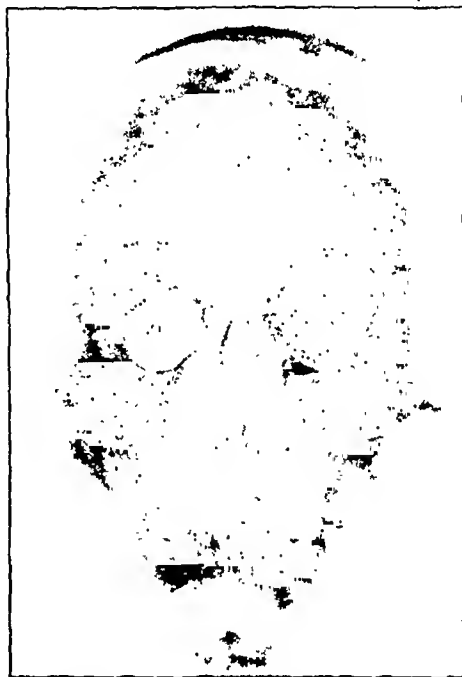


Fig. 5.—Anteroposterior view of skull, April 13, 1939, showing relation of aneurysms to defect in posterior wall of right orbit.

cedure which proved successful in combating the threatened infection. The patient was discharged three months after operation weighing 115 pounds (52 Kg.), but she was readmitted one month after this because of the severity of pain in the left suboccipital area of the neck and shoulder.

Sixth Admission to the Presbyterian Hospital (from April 10 to 28, 1939).—The right eyelids were well closed and the condition of the eye was satisfactory. The left fundus showed atrophy of the nerve head with small shrunken arteries. X-ray examination of the skull (Dr. H. H. Kasabach) revealed some further destruction of the posterior clinoid processes. X-ray examination of the cervical spine showed no dilatation of the vertebral canals to account for the pain.

On laboratory examination the basal metabolic rate was -31 and the fasting serum cholesterol was 209 mg. per hundred cubic centimeters.

Procaine hydrochloride and two days later benzyl alcohol 10 per cent were injected into the spinal dorsal ganglions of the second, third and fourth cervical vertebrae, with relief of pain. The second injection was followed by a hysterical episode that lasted two days. It was noted that for four days after the operation the left side of the face to the midline was flushed

in contrast to the previous marked pallor; skin temperatures, as the flush was subsiding, were equal on the right and left, however. Suboccipital pain was relieved by the injections made into the dorsal ganglions.

Seventh Admission to the Presbyterian Hospital (from June 6 to 13, 1939).—This admission was necessitated by a cellulitis of the right side of the face and neck following extraction of two lower molars a week before. Recovery was uneventful.

July 8, six months after wiring of the aneurysm, x-ray examination of the skull showed no further change (fig. 3).

Eighth Admission to the Presbyterian Hospital (from Oct. 22 to 31, 1939).—This admission was arranged to check the patient's progress. She was now out of bed from one-half to one hour every day, though glad to remain in bed the rest of the day. She had learned braille and was mentally alert, interested and in good spirits. Her appetite was described as poor by the family. The menses had still not returned. There was no nausea or vomiting. Physical examination was unchanged.

X-ray examination of the skull (Dr. Dyke) showed no advance of the area of bone destruction since April, six months before (figs. 3 and 5). The basal metabolic rate was -28 . The dextrose tolerance test fasting was 102 mg. per hundred cubic centimeters, one-half hour 143 mg., one hour 124 mg., two hours 105 mg. and three hours 100 mg.

A program of increasing activity was outlined and the patient was urged to get out of bed more and more. During her stay a tooth was pulled without complication.

Oct. 15, 1940, twenty-two months after the wiring, the patient weighed 140 pounds (63.5 Kg.), was ambulatory and relatively improved except for pain in the left eye occasionally. Amenorrhea persisted.

COMMENT

An aneurysm of the internal carotid artery within the skull was treated by wiring and electrothermic coagulation according to the method of Blakemore and King. The aneurysm was progressive despite ligation of both common carotid arteries. The situation was further complicated by the syndrome of Simmonds' cachexia due to destruction of the anterior hypophysis within the sella by the aneurysm. To date the patient has survived twenty-two months since the wiring, although the area of destruction from the aneurysm, at that time and now, measures roughly about 6 by 6 by 7 cm. Progression of the area of destruction has not occurred in the past sixteen months.

Before the wiring procedure, blindness with optic atrophy was present on the right. There was also blurring of vision and a diminution of the temporal field of vision of the left eye. Following the operation the remaining vision was lost on the left with subsequent optic atrophy. Pressure on the optic nerve following an increase in the size of the wall of the aneurysm from postoperative edema could account for this result. Swelling has been observed to occur in the walls of aortic aneurysms so treated. If this interpretation is correct, the edema might well have been avoided with two precautions. First, an x-ray film taken during the procedure, after the insertion of 2 feet of wire, would have outlined the active portion of the aneurysm. This would have afforded a more accurate guide for determining the amount of wire to be introduced than the estimate made from the area of bone destruction. Thus, the introduction of so much (30 feet) wire would have been prevented. Second, heating the wire to 70 C. for a few seconds is enough to deposit a protein coagulum on the wire adequate for clotting but with the production of less edema than after a temperature of 80 C. for forty seconds.

The possibility that propagation of the thrombus established within the lumen of the artery may have

accounted for the loss of vision cannot be ruled out. However, such a mishap has not followed wiring of any aneurysm of the aorta that has been so treated.

The wire was introduced into the aneurysm through the bony defect in the orbit because of the advanced degree of hypophyseal insufficiency. Any extensive surgical procedure, such as craniotomy, is ruled out in these cases by the overwhelming probability that shock will result from the least trauma. However, when the aneurysm has not caused hypophyseal destruction, craniotomy and insertion of the wire under direct vision is naturally to be preferred.

To date, the syndrome of destruction of the anterior hypophysis has not been much alleviated in this case. The enormous size of the aneurysm makes the possibility small that there is much surviving hypophyseal tissue or that there will be much decrease in the pressure in the sella. The ineffectiveness of substitution therapy by thyroid, adrenal cortex extract or anterior hypophyseal growth extracts should be noted. The toxicity of hypophyseal extracts when nearing adequate dosage and the ease with which hyperthyroid symptoms can be produced by thyroid should be stressed. Of incidental interest also is the appearance of flushing of the face following injection of the dorsal ganglions of the second, third and fourth cervical vertebrae. This would indicate that the marked pallor, first described by Simmonds and not due to anemia, is vasospastic in origin.

The procedure of wiring and electrothermic coagulation was applied in the treatment of an aneurysm of the internal carotid artery within the skull. The patient has survived since, fourteen months to date. This case is too complicated, because of the previous internal carotid artery ligation and the presence of advanced hypophyseal insufficiency, to judge the merits of wiring as a method of treatment of this type of aneurysm. Nonetheless, the operation has been accomplished successfully under these most adverse circumstances. This procedure is therefore presented to encourage its trial as a new, simple and probably effective operative approach to the treatment of aneurysms of the internal carotid artery.

SUMMARY

1. The wiring procedure of Blakemore and King for the treatment of aneurysms of the aorta has been extended to the treatment of aneurysm of the internal carotid artery within the skull.

2. An aneurysm of the right internal carotid artery within the skull, progressive despite ligation of both common carotid arteries and complicated by Simmonds' cachexia, has been successfully treated by wiring.

3. The pallor of the face associated with the syndrome of Simmonds' cachexia would seem to be vasospastic in origin.

4. Substitution therapy in Simmonds' disease is ineffective at present.

620 West 168th Street.

Tuberculosis Reactors Decrease.—In a ten year tuberculin testing program in rural and town schools in four counties in Minnesota the percentage of reactors has fallen from 14.1 to 6.75. The decrease is attributed to a careful follow-up of all positive reactors, with an intensive search for the source of the infection. Contact with open cases of tuberculosis was broken by hospitalization of the case or placing the children in a home free from tuberculosis. All teachers and school personnel were included in the plan.—National Tuberculosis Association Clip Sheet, February 1941.

THE INTESTINE IN RADIATION
SICKNESSI. THE GROSS EFFECT ON THE SMALL INTESTINE
OF PROTRACTED DEEP PELVIC IRRADIATION

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As the colon has frequently been studied with the intention of finding the cause of the diarrhea seen in radiation sickness and the findings have been inconclusive, and as diarrhea has been shown to be frequently due to disease of the small intestine,¹ I decided to investigate grossly the small intestine of a series of patients receiving heavy, long-protracted doses of high voltage roentgen therapy over the pelvis, using portals large enough so that there is direct irradiation of a portion of the small intestine.

LITERATURE

Several workers, notably Warren and Whipple² and Martin and Rogers,³ have overirradiated the abdomen in experimental animals and studied the pathologic change produced in the bowel. This work has given physicians a background of knowledge of the nature of the radiation injury, but unfortunately integration between it and the effects of therapeutic doses in man is practically impossible because of variations in susceptibility and the fact that, in treatment of the human patient, one endeavors to stop short of the damaging dose.

In such pathologic studies of the injured human bowel as have been made by Corscaden, Kasabach and Lenz,⁴ Healy⁵ and Cathie,⁶ the injuries have been generally acknowledged to be manifestations of an idiosyncrasy to irradiation, or else manifestations of local overirradiation of an immobile loop of bowel, fixed in position by peritoneal adhesions or extension of a tumor. Patients showing actual intestinal damage after therapeutic doses of radiation are all rare enough to merit reporting. Obviously pathologic examination of the bowel in patients showing normal response to a series of radiation treatments is not justified to satisfy experimental curiosity, and another method of examination must be used.

The examination of the small intestine by the use of ingested opaque substances is, of necessity, gross and in no way approximates the accuracy of the pathologic study. It surely will, however, at some future date be possible at the time of laparotomy or necropsy after death from some intercurrent disease to obtain pathologic material showing the normal response of the bowel to a heavy series of therapeutic radiation treatments. According to Martin and Rogers⁷ and Desjar-

dins⁸ the reaction of radiation sickness is nonspecific and differs widely from the specific reaction seen in the grossly overirradiated bowel.

The pathologic changes⁹ in the overirradiated bowel are:

1. Increased tone with spastic contraction.
2. Mucoïd degeneration, vacuolization and desquamation of the epithelial cells, beginning in the cells overlying the lymph follicles and lining the crypts and later extending into the cells covering the villi.
3. Atrophy of the villi.
4. Hyperemia and edema.
5. Occasional mucosal ulceration.
6. Bacterial accumulation on the denuded surfaces.
7. Infiltration of leukocytes.
8. Ultimate mucosal regeneration or proliferation of connective tissue to replace the destroyed cells.

Martin and Rogers³ have shown that a certain extent of these changes is entirely compatible with life, and it may be that radiation sickness is a manifestation of these changes in a mild degree. Warren and Whipple¹⁰ have shown that no overwhelming bacterial invasion occurs even with widespread ulceration, which seems to indicate that the symptoms of radiation sickness are



Characteristic appearance of intestine after barium sulfate meal.

not due to passage of massive numbers of bacteria through an injured mucosa of increased permeability. It is not the purpose of this paper to discuss the etiology of radiation sickness, or actual intestinal injury, as there are numerous hypotheses, none of which is conclusive, including the liberation of toxic products from irradiated lymphoid tissue,¹¹ actual metabolic changes,¹² the psychic element, the production of ozone in the treatment room and the release of a histamine-like substance from irradiated tissues,¹³ to mention only a few.

SELECTION OF CLINICAL MATERIAL

For a time, all new patients with carcinoma of the cervix coming under my care at the clinic of Duke Hospital were subjected to a preliminary study of the

From Duke Hospital and Duke University School of Medicine.
Read before the Section on Radiology at the Ninety-First Annual Session of the American Medical Association, New York, June 12, 1940.

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2. Warren, S. L., and Whipple, G. H.: Roentgen Ray Intoxication: I. Unit Dose Over Thorax Negative, Over Abdomen Lethal; Epithelium of Small Intestine Sensitive to X-Rays, *J. Exper. Med.* **35**: 187 (Feb.) 1922. II. A Study of the Sequence of Clinical, Anatomic, and Histologic Changes Following a Unit Dose of X-Rays, *ibid.*, p. 203; III. The Speed of Autolysis of Various Body Tissues After Lethal X-Ray Exposures; the Remarkable Disturbance in the Epithelium of the Small Intestine, *ibid.* p. 213; IV.¹⁰

3. Martin, C. L., and Rogers, F. T.: The Intestinal Reaction to the Erythema Dose, *Am. J. Roentgenol.* **10**: 11 (Jan.) 1923.

4. Corscaden, J. A.; Kasabach, H. H., and Lenz, Maurice: Intestinal Injuries After Radium and Roentgen Treatment of Carcinoma of the Cervix, *Am. J. Roentgenol.* **30**: 871 (June) 1938.

5. Healy, W. P., in discussion on Corscaden, Kasabach, and Lenz,⁴ p. 887.

6. Cathie, I. A. B.: Ulceration of the Small Intestine Following Irradiation of the Pelvis, *Am. J. Roentgenol.* **30**: 895 (June) 1938.

7. Martin, C. L., and Rogers, F. T.: Roentgen Ray Cachexia, *Am. J. Roentgenol.* **11**: 280 (March) 1924.

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12. Dodds, E. C., and Webster, J. H. D.: Metabolic Changes Associated with X-Ray and Radium Treatment, *Lancet* **1**: 533 (March 15) 1924.

13. Moon, V. H.; Kornblum, Karl, and Morgan, D. R.: Pathology of Irradiation Sickness, *Proc. Soc. Exper. Biol. & Med.* **43**: 305 (Feb.) 1940.

small intestine before the institution of therapy. From these were selected 10 patients, in whom careful study had revealed no organic lesion of the gastrointestinal tract. These received the usual dose of radiation (with slight individual variations for physical condition of the patient and stage of the disease), and the small intestine was reexamined at the end of a protracted series of radiation treatments. None of these patients had received any radium therapy previously.

TECHNIC OF IRRADIATION

The 10 patients selected all received between 1,700 and 2,200 roentgens from each of two anterior, two posterior and two lateral portals, all 10 by 15 cm. With two exceptions, the rays were generated at 400 kilovolts, and 5 milliamperes, filtration of 4 mm. of copper, with a half value layer of 5 mm. of copper being used. In the 2 remaining cases, the rays were produced at 200 kilovolts and 25 milliamperes, with filtration of 1 mm. of copper, and a half value layer of 2 mm. of copper. In addition, 3 of the patients received around 5,000 roentgens intravaginally, with 500 roentgen doses interspaced after every third external treatment, the rays produced at 200 kilovolts and 25 milliamperes, with filtration of 1 mm. of copper and a half value layer of 2 mm. of copper.

In every case the external irradiation was given as follows, in a modification of the method used by Healy at Memorial Hospital:

1. Each day two opposing portals are treated, the rays always being directed exactly at right angles to the plane of the body parallel to the top of the treatment couch.
2. The anterior and the posterior portals on each side meet in the midline of the body, and no attempt is made to incline the beam and cross fire the cervix.
3. Each of the first three days, each of two opposing portals receives 150 roentgens.
4. Each of the second three days, each of two opposing portals receives 200 roentgens.
5. Each of the third three days, each of two opposing portals receives 250 roentgens.
6. Daily thereafter each of two opposing portals is given 300 roentgens until the desired total dose has been administered. (For economic reasons, the daily dose has been increased to 350 and even 400 roentgens per portal in a number of cases without undue effect, but the usual routine is to continue at 300 roentgens per portal until the desired total dose is reached.)

The patients, equally divided among white persons and Negroes, were all of farming families, and all withstood their irradiation without undue discomfort. No drugs were prescribed to alleviate any symptoms of radiation sickness which appeared, and in only 1 case did the diarrhea approach moderate severity, with three stools a day. (I recognize that nausea is likely to be a more prominent feature among a more exacting group of patients. However, this same general routine is followed at Duke Hospital in the treatment of every patient with carcinoma of the cervix, and no patient has yet shown any lasting injury, and in no case has the radiation sickness been of sufficient severity to cause more than temporary interruption of therapy. This intensive method of therapy is aimed primarily at eradication of the more radioresistant metastases to broad ligaments, in the belief that intracervical radium and intravaginal roentgen irradiation are highly effective in destroying the primary tumor in the cervix.)

TECHNIC OF EXAMINATION OF THE SMALL INTESTINE

It has been shown by several workers, Golden,¹ Menville and Ané,¹⁴ Pendergrass and his associates,¹⁵ that in examination of the small intestine the use of a standard meal and a standard technic of examination is necessary to afford a valuable comparison. Accordingly, none of these patients had any chronic medication of any type. To forestall any possible effect on the bowel from carbohydrate, fat, or flavoring materials, I used 3 ounces (85 Gm.) of barium sulfate¹⁶ in 6 ounces of water, which the patient was instructed to swallow rapidly. The esophagus and stomach were examined fluoroscopically at the time of the meal. The patient was allowed to sit for a fifteen minute interval, after which she was examined roentgenoscopically in the prone and supine positions and a roentgenogram was taken in the supine position, to show the duodeno-jejunal juncture and the upper jejunum, according to the technic of Golden.¹⁷ Good quality roentgenograms were obtained in the average patient with 90 kilovolts, 100 milliamperes and one-fourth second exposure, the Bucky diaphragm being used at a distance of 25 inches.

At hourly intervals after the meal, the patients were again examined with the fluoroscope in supine and prone positions, and roentgenograms of the prone patients, centered over the filled area of bowel, were made, the same technical factors mentioned previously being used. In every patient studied in this investigation at the time of the first examination the meal had reached the ileocecal valve and started into the cecum by the end of two hours. Accordingly in the majority of cases the examination was not continued beyond the end of the two hour period.

NORMAL APPEARANCE OF THE SMALL INTESTINE

The appearance of the various segments of small intestine in every case selected for complete investigation was essentially the normal one that has been well described by previous workers, including Forsell,¹⁸ Golden¹ and Pendergrass and his associates,¹⁵ and will be mentioned only briefly.

The duodenum showed a characteristic "fish bone" appearance, with high and fairly wide mucosal folds. Its lumen is from 3 to 4 cm. in diameter.

The upper jejunum showed a slightly narrower lumen, with much finer but equally high folds, producing the characteristic "feathery" appearance. As the meal proceeded to the lower jejunum, the folds gradually became slightly lower and wider and there was slight further narrowing of the lumen.

The characteristic appearance of the ileum shows a lumen well under 3 cm. in diameter, with folds not over a millimeter or two high and almost a centimeter wide. In some phases of peristalsis the ileum assumes the "stacked coin" appearance, with folds as narrow as those of the duodenum but not nearly as high, and frequently it shows longitudinal striations.

14. Menville, L. J., and Ané, J. N.: X-Ray Study of the Passage of Different Foodstuffs Through the Small Intestine of Man, *Radiology* 18: 783 (April) 1932.

15. Pendergrass, E. P.: The Small Intestine, *J. A. M. A.* 107: 1859 (Dec. 5) 1936. Pendergrass, E. P.; Raydin, I. S.; Johnston, C. G., and Hodes, P. J.: The Effect of Foods and Various Pathological States on the Gastric Emptying and the Small Intestinal Pattern, *Radiology* 26: 651 (June) 1936. Raydin, I. S.; Pendergrass, E. P.; Johnston, C. G., and Hodes, P. J.: The Effect of Foodstuffs on the Emptying Time of the Normal and Operated Stomach and the Small Intestinal Pattern, *Am. J. Roentgenol.* 35: 306 (March) 1936.

16. Mallinckrodt chemically pure barium sulfate was used.

17. Golden, Ross: Personal communication to the author.

18. Forsell, G.: The Mechanism of Movement of the Mucus Membrane of the Digestive Tract, *Am. J. Roentgenol.* 10: 87 (Feb.) 1923.

In normal persons the barium has a tendency to remain in a continuous stream, with only occasional empty segments interrupting the continuity, these due to recent peristaltic contraction.

In the duodenum and jejunum peristaltic contractions are massive, usually involving a segment 5 to 10 cm. in length. In the ileum the areas of peristalsis are much less extensive, and each wave usually involves only about 1 cm. of the bowel.

POSTRADIATION CHANGES IN THE SMALL INTESTINE

The findings in the studies of the small intestine made at the end of the protracted series of therapy are graphically illustrated in the accompanying table. In no case was there any demonstrable change in the duodenum or jejunum, both of which lay almost entirely outside the irradiated areas. The two most common changes were segmentation of the barium stream and flattening of the pattern of the ileal mucosa. Segmentation was

Early in this investigation, I conceived the opinion that the syndrome of radiation sickness might be due to a failure of the impaired mucosa to absorb food materials, with the production of an actual deficiency state, but this does not seem to be true when therapeutic doses of radiation are used. The findings in the small intestine in the common deficiency states tropical and nontropical sprue, have been ably described by Golden¹ and Snell, Camp and Watkins¹⁹ and by Golden¹ and Mackie, Pound, Miller and Rhoads,²⁰ and are in many ways similar to, though more extensive than, the changes herein described. In both of these deficiency diseases, segmentation of the barium stream and hypomotility of the small intestine are prominent features. However, the acute mucosal changes are observed more commonly in the duodenum and the jejunum than in the ileum, although there is the same loss of pattern and flattening of the mucosal folds seen in my cases. The mucosal change in the bowel of patients with deficiency diseases

Effects of Radiation Therapy: Clinical Summary

No.	Age	Race	Para	L. of N. Stage	Therapy (G External Ports)	Previous Gastro-intestinal Symptoms	First Ileal Study	After Therapy		Changes in Small Intestine After Therapy				
								Nausea	Diarrhea	Duodenum	Jejunum	Ileum	Segmentation	Diminished Motility
1	57	N	0	IV Adeno.	2,150 r/port 400 KV, 4 mm. Cu 4,500 r vaginal 200 KV, 1 mm. Cu	0	Negative	+	0	0	0	Narrowing, flattening of pattern	+	+
2	31	W	I	II Sq.	2,000 r/port 400 KV, 4 mm. Cu 5,000 r vaginal 200 KV, 1 mm. Cu	0	Negative	+	0	0	0	Narrowing, flattening of pattern	+	0
3	58	W	vii	III Sq.	2,000 r/port 400 KV, 4 mm. Cu	0	Negative	+	+	0	0	Narrowing, flattening of pattern	+	+
4	39	N	i	II Sq.	1,800 r/port 400 KV, 4 mm. Cu	0	Negative	0	0	0	0	0	+	0
5	38	W	vii	III Sq.	1,800 r/port 200 KV, 1 mm. Cu	0	Negative	+	0	0	0	Narrowing, flattening of pattern	+	+
6	40	W	iii	III Sq.	1,700 r/port 200 KV, 1 mm. Cu	0	Negative	+	0	0	0	Narrowing, flattening of pattern	+	0
7	66	W	xi	III Sq.	2,000 r/port 200 KV, 1 mm. Cu	0	Negative	+	0	0	0	Narrowing, slight flattening	+	+++
8	35	N	vi	IV Sq.	2,000 r/port 400 KV, 4 mm. Cu 5,000 r vaginal 200 KV, 1 mm. Cu	0	Decided hypermotility	0	0	0	0	Flattening	++	++++
9	60	N	iv	IV Sq.	2,000 r/port 400 KV, 4 mm. Cu	0	Negative	+	0	0	0	Narrowing	+	+
10	39	N	v	III Sq.	2,100 r/port 400 KV, 4 mm. Cu	0	Negative	+	0	0	0	Loss of pattern	0	+

observed in all but 1 case and changes in pattern, varying from a slight to a marked degree, were found in 8 of the 10 cases. A decrease in motility was shown in seven instances, and an absolute diminution in the diameter of the ileal lumen due to spastic contraction was shown in an equal number.

There was no apparent quantitative variation in effect obtained by slightly more than 20 per cent variation in dosage, by the use of 200 kilovolts and 1 mm. of copper as compared to 400 kilovolts and 4 mm. of copper, or by the supplementary use of a heavy dose of intravaginal irradiation at 200 kilovolts and 1 mm. of copper.

COMMENT

In the light of this study, it appears that the diarrhea from deep pelvic irradiation is due to changes in the large rather than in the small intestine, as all demonstrable change in the small intestine would tend to produce an opposite effect. This would not necessarily hold true in the case of irradiation heavy enough to produce permanent damage to the small intestine.

has been considered²¹ to be due to edema, going on to actual atrophy and destruction, though cases have been described¹⁶ which show no edema but round cell infiltration of the submucosa. It is highly likely that edema is the cause of the mucosal change in the 10 cases described previously. Finally, the patient with the true deficiency state frequently²² presents stubborn colitis, which was not seen in this series of cases even after tremendous doses of irradiation.

Further investigation of the length of time required for the small intestine to return to a normal appearance, the effect of sickness-producing doses of radiation

19. Snell, A. M., and Camp, J. D.: Chronic Idiopathic Steatorrhea: Roentgenologic Observations, *Arch. Int. Med.* 53: 615 (April) 1934. Snell, Camp, and Watkins.²¹

20. Mackie, T. T., and Pound, R. E.: Changes in the Gastrointestinal Tract in Deficiency States, with Special Reference to Small Intestine: Roentgenologic and Clinical Study of Forty Cases, *J. A. M. A.* 104: 613 (Feb. 23) 1935. Mackie, Miller and Rhoads.²²

21. Snell, A. M.; Camp, J. D., and Watkins, C. H.: Nontropical Sprue, *Proc. Staff Meet., Mayo Clin.* 10: 177 (March 20) 1935.

22. Mackie, T. T.; Miller, D. K., and Rhoads, C. P.: Sprue: Roentgenologic Changes in the Small Intestine, *Am. J. Trop. Med.* 15: 571 (Sept.) 1935.

The operations to be considered in this appraisal are subtotal or total gastrectomy and resections of the small and large intestines. The conditions for which they are done necessarily influence the evaluation of results, inasmuch as surgical intervention for cancer where no medical treatment has efficacy may be regarded as justifiable to prolong life even on a less than normally comfortable basis. Recurrence of the disease is anticipated, and the surgical removal of the original lesion is intended as a day to day measure, justified by the patient's right and desire to live as long as possible. Likewise, a destructive disease such as ulcerative colitis is often so desperate that radical surgical intervention or colectomy, even with imperfect results, may be regarded as justifiable and desirable. In this disease, however, the internist is confronted with two tormenting factors: first, that with the uncertain and probably complex etiology a simple medical cause may be overlooked and an important organ unnecessarily sacrificed, and second, that this sacrifice may be unnecessary because of that apparently spontaneous improvement which occasionally occurs in this disease just as radical surgical intervention is being considered. Under these conditions necessarily imperfect results, while justified in desperate circumstances, should be avoided as long as the road between fatality and medical cure does not become too precarious. Peptic ulcer, on the other hand, is a disease which, when uncomplicated or even with the milder complications, should be amenable to medical treatment, and radical surgical intervention for this disease, even if productive of good results, should be done only with impelling indications. This fact is, of course, now widely acknowledged, and differing policies by various persons and groups are the results of differences in the appraisal of indications and results. For this reason, especially in this disease, frequent estimates of indications and results are an important practical help toward better therapy and even toward a clearer understanding of the etiology of the disease. In this review, an unselected group representing each type of case requiring radical surgical intervention was used.

The mortality of radical surgical intervention, while obviously the most important consideration in a discussion of results of treatment, has so often been discussed in relation to radical gastrointestinal operations that it will not be considered in this paper. This discussion concerns the living patient who has had resection, and attempts to cover two questions: (1) Has the operation relieved the condition for which it was done, and (2) is the patient gastrointestinally comfortable?

Two hundred and sixty-two patients were studied, 120 of whom had had resection of the stomach, 22 resection of the small intestine and 120 resection of the large intestine.

Resection of the stomach was done in these 120 patients for three conditions: in 91 for peptic ulcer, in 25 for carcinoma and in 4 for benign lesions not ulcer.

The results of radical operations for peptic ulcer will be considered first. Resection in this disease was done for three reasons: (1) intractability, (2) multiple hemorrhages and (3) obstruction unrelievable by medical management.

There were 49 cases of intractable ulcer—20 of duodenal, 17 of gastric and 12 of gastrojejunal ulcer.

In most instances of these intractable duodenal ulcers it was assumed after laparotomy that the ulcer failed to respond because of its anatomic location on the posterior wall of the duodenum and penetrating into the head of the pancreas. In some of these cases it was impossible surgically to remove the lesion itself. The 19 patients with gastric ulcer had resection chiefly because there was a reasonable suspicion of future malignancy because of recurrence, or of present malignancy because of failure to heal. The gastrojejunal ulcers, mostly jejunal, occurred a few months to many years after posterior gastroenterostomy and, like the duodenal ulcers, were thought to have resisted medical treatment because of their location and to be a menace because of the danger of gastrojejunal fistula, which in 2 cases had already actually developed.

The commonest symptoms suggestive of functional derangement after gastric resection are a sensation of fulness, sometimes to the point of nausea, regurgitation or vomiting directly after eating, loss of appetite and a general sensation of distention and distress throughout the abdomen. There is occasional diarrhea. When a definite jejunitis or new ulcer has occurred, the symptoms are typical ulcer symptoms. Of the 20 patients whose duodenal ulcers were resected, 8 were symptomless one to ten years postoperatively, while 13 patients had discomfort ranging from postprandial distention to vomiting and diarrhea, and in 5 of these jejunitis or jejunal ulcer was suggested both clinically and by roentgen examination. In none of these cases was free hydrochloric acid found after a test meal, but its absence without fluoroscopic control of the position of the tube in the resected stomach is not absolute evidence of a lack of secretion.

The 17 patients with intractable gastric ulcers who had resection are, up to now, much more satisfactory from the standpoint of good results. Eleven were found to have no digestive symptoms, while 6 had mild indigestion, in most cases ascribed to careless diet. None of these patients was known to have free hydrochloric acid after operation. It must be noted that while the ulcers of these patients are classified as intractable, the majority of them were resected because the complete healing of the ulcer had not occurred quickly enough to allay suspicion of malignancy. Their benign character as proved microscopically suggests that at least some of them might ultimately have healed, even if no operation had been done.

Of the 12 patients with intractable gastrojejunal ulcer who had lysis of the gastroenterostomy and subtotal resection, 4 were found to be symptomless one to ten years postoperatively; in the other 8 there had developed in one to nine years after resection symptoms varying from mild abdominal distress and distention to typical ulcer distress. Two had hemorrhages, one and four years respectively after resection, although no hemorrhage had occurred from the original ulcer. One had a second subtotal gastrectomy with excision of a second gastrojejunal ulcer, and 2 had successful medical treatment for what were thought to be recurrent gastrojejunal ulcers. Free acid, after test meals, in the gastric juice of 4 of these patients with recurrent ulcer was 12, 18, 26 and 28.

While the groups of cases just described are too small to permit of definite conclusions, it is rather striking that the surgical treatment of these ulcers follows the same pattern in the matter of end results as the medical

treatment. The gastrojejunal ulcers are the most resistant, the duodenal the next most difficult and the gastric the most satisfactory in results.

The second indication, multiple hemorrhages, was present in 41 cases: 29 of duodenal, 6 of gastrojejunal and 6 of gastric ulcers. Of this group, 6 patients had recurrent hemorrhages after subtotal gastrectomy (five original duodenal ulcers and one original gastrojejunal ulcer). In 4 of the 6 patients there was achlorhydria; the gastric juice of the other 2 showed a free hydrochloric acid content of 39 and 40 respectively. The first postoperative hemorrhage occurred in these patients one and a half to three years after subtotal gastrectomy. Eleven other patients had complaints one to four years later, ranging in severity from an uncomfortable fullness after meals to real ulcer distress. Three of these 11 patients had free hydrochloric acid, after a test meal, of 7, 12 and 79 respectively. The patient with an acid content of 79 had an acute perforation of a jejunal ulcer. The others had achlorhydria (without fluoroscopic control of the position of the tube). Twenty-three patients had no stomach consciousness, although 3 of these symptomless patients had free acid of 17, 20 and 45 respectively.

In this group of patients, on whom resection was done because of multiple hemorrhages, it is again noted those with gastrojejunal ulcer are the least satisfactory, 3 out of 6 having recurrent symptoms; in the duodenal group, 15 of 29 had postoperative symptoms, while the gastric ulcer group was 100 per cent satisfactory. It must again be emphasized, however, that all these groups are too small to allow definite deductions from these facts.

The third indication for resection was pyloric obstruction. There were 19 patients with obstruction, of whom 17 were entirely symptom free one to ten years after resection. Two patients had mild symptoms, but neither had recurrence of the ulcer. Five were known to have achlorhydria postoperatively, and 1 had a free acid content of 14. This group, therefore, showed an almost 100 per cent good result from subtotal gastrectomy. In discussion of this fact, it might be thought that for this indication a less radical operation, such as gastroenterostomy, might be just as effective as this radical procedure, but in my opinion this would not have been true, especially since 11 of these patients were under 50 years of age, with high gastric acidity.

To revert to the three criteria set up at the beginning of this paper, namely: (1) Does this operation, subtotal gastrectomy, cure the disease and why? (2) Is it the least radical procedure possible? (3) Is the cure worse than the disease? I would first again emphasize the fact that the total number of cases is too small to justify conclusions and that no group of statistics regarding ulcer can be considered final as long as the patients are alive. Under these conditions, while no conclusions may be drawn, comment and discussion of these results may be permitted. It is rather striking that hemorrhage and intractability in the duodenal and gastrojejunal ulcers are less easily controlled by subtotal resection than in the gastric ulcer. Since gastric acidity in patients with gastric ulcer is almost always within normal range and in those with duodenal and gastrojejunal ulcer high, it is tempting to assume that this factor plays an important part in postresection results. Even when no new ulcer occurs, it is possible that gastritis or jejunitis, probably associated with this

acid factor, produces new symptoms. Only in the individual case can it be determined whether these new symptoms are more unpleasant or serious than those for which operation was done, but if the possibility of previous medical treatment has been exhausted it becomes necessary to give the patient an opportunity for relief and safety with a surgical procedure. This opportunity may involve a relatively high chance of recurrence or some postoperative discomfort, but it must still be given the patient if everything else has failed. The good results in cases of obstruction may also be due to the fact that acid plays a less important role in these cases where the indication for operation has been the relief of the cicatricial end results of ulcer formation and not of the active ulcer.

The second question, "is it the least radical procedure possible for this condition?" is in my opinion to be answered in the affirmative. As time goes on and experience with ulcer accumulates, the number of patients on whom gastroenterostomy and pyloroplasty have been performed who return, often fifteen to twenty years after the operation, with that most distressing of all ulcers, the gastrojejunal, grows steadily larger. In a few patients with more insidious gastrojejunal ulcers there has already developed a jejunocolic fistula; a larger percentage of patients has hemorrhage or perforation—in fact the complications are more numerous than in the simple duodenal ulcer for which operation was done. The complete picture of cases of gastric resection is yet to be unfolded, but with reduction of acid in most cases it can hardly be as disappointing as that of gastroenterostomy.

The third criterion, "is the cure worse than the disease?" involves not only a consideration of the number of recurrences of ulcer after the operation, which has already been discussed, but also a survey of the general condition of those patients who have been relieved of their original disease by extirpation of a large part of what is usually considered an important organ, the stomach. Ivy has recently enumerated six functions of the stomach, the digestive, triturating, reservoir, hemopoietic, bactericidal and absorptive, the last especially for iron and calcium. With a large part of the stomach removed, the small intestine must take up the burden of these functions to a large degree in patients with gastric resection. If the stump of the stomach shows peristalsis and gradual emptying, the reservoir and triturating functions are maintained to a considerable degree, and if there is cooperation of the patient through the substitution of small meals at frequent intervals for infrequent large meals, the subjective symptoms of postprandial fullness and discomfort are avoided. The other functions of the stomach are less easily checked, but in the group of cases in which postoperative liver and iron therapy and careful nutrition were prescribed practically routinely, there appeared to be no serious disturbance in the hemopoietic or absorptive functions—which were likewise assumed to be taken over, at least to some degree, by the small intestine. In 27 of the 91 cases there was some difficulty in maintaining weight and in general no tendency to overweight.

Twenty-five patients who had had subtotal gastrectomy for carcinoma of the stomach, observed one to eleven years after operation, showed a surprising lack of symptoms until loss of appetite indicated metastatic

involvement. Instead of fulness and nausea, as observed in the cases of ulcer resection symptoms possibly suggestive of jejunitis—the only symptom noted was diarrhea. There was practically always a gain in weight before the onset of metastatic involvement. From these facts again it is suggested that the hyperchlorhydria factor absent in gastric ulcer and cancer and present in duodenal and gastrojejunal ulcer, where it may produce an inflammatory condition or new ulcer in the newly invaded jejunum, is still the element incompletely controlled even by this radical operation.

In 1 case, total gastrectomy was performed in October 1937 for leiomyosarcoma. The patient is well, maintains her weight and has had practically no discomfort since the operation.

Of the 4 patients who had had resection of the stomach for benign lesions not ulcer, 1 had chronic hypertrophic gastritis, 1 a gastric diverticulum and 2 leiomyomas. Satisfactory results have been obtained since operation, and the patients have no discomfort.

Resections of the small intestine were done in 23 cases for the following diseases: malignant lesions, 4 cases; regional ileitis, 12; Meckel's diverticulum, 3, and chronic intestinal obstruction, 4. In many cases long segments of this organ were removed. On the whole, there was remarkably little apparent effect on digestive function. Of the 4 patients whose small intestine was resected for malignant ulcers, 2 are entirely symptom free six and eleven years respectively after operation; their nutrition is maintained above normal, and they have had no recurrence. The other 2 have had one and a half and four years respectively of comfortable living but are now beginning to show evidence of recurrence. While the small intestine was intact, even though shortened to a considerable degree, there appeared to be no impairment of function. This fact was also true in 8 of the 12 cases of regional ileitis; these patients obviously enjoyed perfect health after the removal of the diseased segment of intestine which, while it was still present in its diseased form, caused symptoms of toxicity and obstruction severe enough to require surgical intervention. The other four of the twelve patients with regional ileitis had minor postoperative disturbances, 3 having some distention (general abdominal or in the right lower quadrant) and 1 having diarrhea. The three patients on whom resection for Meckel's diverticulum was done were in excellent condition postoperatively. Of the 4 patients operated on for chronic intestinal obstruction, 3 had postoperative symptoms, 1 having been reoperated on and the other 2 having recurrence of pain presumably due to the same mechanical and extrinsic cause, adhesions, for which the operation had to be done originally. One was well and had gained 20 pounds (9.1 Kg.).

In summarizing the clinical impressions of patients who have had resection of the small intestine, it seems apparent that large segments of this organ can be removed without disturbance of its function.

The patients with resections of the colon studied for this paper numbered 120, and the indications were as follows: carcinoma of the right portion of the colon, 25; of the left portion of the colon, 28; of the sigmoid flexure and rectum, 48; ulcerative colitis (colectomy) 15, and diverticulitis (resection), 4.

A large number of these patients were confronted with the inconvenience and handicap (mental and physi-

cal) of a permanent artificial abdominal opening. As was to be expected, the physical difficulties of an ileostomy, as in the colectomy cases, resulted in much greater disturbances than were present in the colostomy cases. The mental effects were usually in proportion to the physical, though in some instances related only to the person's temperament. Even the ileostomy was satisfactorily controlled, however, in 11 of the 15 patients operated on for ulcerative colitis, and in all patients but 1 there was an increase in weight which in most instances had to be controlled by a careful dietary regimen. The rescue of such patients from a desperate condition seemed, even to a critical reviewer, a justifiable reason for the radical operation, and when it is further observed that there is also a decided increase in nutrition and a return to full capacity in 11 of these 15 cases, even the most conservative internist must agree that the operation should be done in the desperate cases when there is destruction and polypoid degeneration of the mucosal surface and infiltration of the submucosal layers, or when the toxicity is so profound that recovery appears impossible. There will always remain the important question as to when this state supervenes on that doubtful one where cure by medical treatment may be obtained.

The colon resections done for malignant lesions, whether of the right or left portion of the colon or rectosigmoid, appeared to be entirely justified by the results, if these results are judged by the aforementioned criteria 2 and 3. In other words, cure of the disease is not expected, but physiologic function was adequate and the temporary cure was justified by the comfort of the patients. Twenty-two of the 25 patients who had had resection for lesions of the right portion of the colon showed, in one to six years postoperatively, full capacity for work. There were no digestive disturbances and no anemia, and the only nutritional disturbance was a striking tendency to overweight which predominated in all patients with radical operations of the colon. This fact may be ascribed to the type of diet used by them to reduce the liquid of the intestinal content, which seems more probable as a cause of this tendency to obesity than any possible biochemical or glandular factor resulting from the operation. The 28 patients who had resection for malignant lesions of the left portion of the colon showed, in twenty-six instances, excellent results in one to ten years after operation, good digestive function and full capacity. Here, too, there was no nutritional disturbance except difficulty in keeping the weight down to normal. One patient had nutritional anemia and 1 a postoperative surgical complication.

The 48 patients operated on for carcinoma of the sigmoid flexure and rectosigmoid had equally satisfactory results. During the period of postoperative observation, from one to eleven years, their nutritional condition was on the overnutrition side, they had good control of their colostomies and their capacity for work was normal.

Of the 4 patients with diverticulitis who had resection, 3 were satisfactory from all standpoints, and 1 continued to have some abdominal pain.

In summary, it may be concluded from this study of 262 patients who had radical surgical intervention done on the gastrointestinal tract that resection of any part of the digestive tract is entirely justified when the

lesion is malignant, and that until metastatic involvement occurs the patient may expect satisfactory function and capacity. In ulcerative lesions, both peptic ulcer and ulcerative colitis, radical surgical intervention is justified in cases which are really intractable, but because of the deforming operation in both cases and the possibility of recurrence of peptic ulcer, there should be the highest possible degree of certainty for the need of the operation. Furthermore, since in both diseases the etiology is still obscure and the probable real nature of the disease at least partly constitutional and remote from the locale of the organ itself, there is always the hope that a less radical etiologic treatment may be found to make radical surgical intervention unnecessary. In fact, this type of intervention, while indispensable at present, must still be regarded as far from the final answer to these problems. Of the three organs concerned in this study—the stomach, the small intestine and the colon—it is obvious that the small intestine is by far the most important from the standpoint of physiologic function, and furthermore that it is equipped to assume to some degree the function of both stomach and colon when these organs have been removed.

ABSTRACT OF DISCUSSION

DR. JOHN G. MATEER, Detroit: Our experience has been similar to that of Dr. Jordan. We also have advised operation on only the complicated or the intractable cases. At the Henry Ford Hospital, during the past two years, with further improvements in operative procedure and in preoperative and postoperative care, there has been a further reduction of the operative mortality for gastrectomy from 5 per cent to 2.5 per cent, or two deaths in the last 80 consecutive cases. This reduction of our mortality has encouraged Dr. McClure to substitute almost routinely partial gastrectomy for gastroenterostomy in the complicated ulcer cases. An analysis has been made of the therapeutic end results in the 50 cases of complicated peptic ulcer which have been followed carefully in our gastrointestinal clinic over a period of six months to seven years following gastrectomy. The end results in this total group of benign ulcers include the more and less favorable subgroups of pyloric obstruction, repeated hemorrhage, intractability of ulcer activity, jejunal ulcer and suspected malignant gastric ulcer. A variation in the percentage of patients in the different subgroups of ulcer complications operated on in different clinics necessarily produces some difference in the percentage of optimum therapeutic end results obtained. In 74 per cent of our total group the therapeutic end result was most gratifying, with practically no residual symptoms. In an additional 14 per cent the patients complained of some periodic epigastric fullness and flatulence (as referred to by Dr. Jordan); but the condition of these patients was greatly improved over their preoperative state. In 8 per cent of this total group jejunal ulcer developed after gastrectomy, and in three fourths of these jejunal ulcers hemorrhage developed after pain. The other 4 per cent of patients suffered a great deal of distress, although there was no evidence of postoperative ulcer. To obtain a low percentage of mortality and a high percentage of satisfactory end results from partial gastrectomy for complicated ulcer there are three essential requirements: (1) painstaking preoperative preparation of every patient, (2) operation by a skilful and experienced surgeon and (3) prolonged follow-up medical care of these patients. This care should emphasize continued proper habits of living and, temporarily, an adequate and comprehensive but concentrated diet with five small meals a day. In the few definitely intractable cases of chronic ulcerative colitis ileostomy alone is not always adequate, and subsequent colectomy may be a life-saving measure.

DR. HENRY L. BOCKUS, Philadelphia: Dr. Mateer and Dr. Jordan have mentioned that none of their patients went to the operating room until they had been thoroughly treated medically.

Only the intractable ulcers were subjected to surgery. Consequently the results in their cases are not quite so good as those reported in many of the European clinics where this operation is being done routinely for uncomplicated ulcer. Naturally, the mortality in foreign clinics will be less and their recurrences will be fewer, since many of their patients would have responded to adequate medical management. There are about 25 per cent of cases from the statistics of both Dr. Mateer and Dr. Jordan in which the results are not satisfactory. They include the retractable cases that do not do well with any type of treatment. I should like Dr. Jordan to tell us whether she thinks that these patients would be better off if they had not had a subtotal gastrectomy. Many gastroenterologists have the idea that resection of a considerable section of the small bowel leaves the patient in an unfavorable state of subnutritional equilibrium. It is surprising how much of the small bowel can be resected, for example in extensive regional ileitis, and still have the patient go along in a state of good nutritional equilibrium with some attention devoted to the supplying of nutritional elements. I have had one patient who has had about 6 feet of the small bowel resected and who is doing quite well with only two or three bowel movements a day. I should like to reiterate what Dr. Jordan has said, that it is quite important to consider surgery for all of these patients and not to feel that they are beyond the resectable stage if at least the upper half of their small bowel seems normal. I do not agree entirely with the author's remarks dealing with surgery in ulcerative colitis. Our mortality in ulcerative colitis seems definitely proportionate to the number of cases in which operation is performed. We lose very few cases if surgery is not employed. Many of the seriously ill patients, even when they have arrived at the stage when ileostomy was suggested to the family, may go into a remission when it is least expected—if intensive adequate therapy is persistently and doggedly used. For these reasons I have taken a more conservative attitude toward colectomy in the treatment of typical distal advanced ulcerative colitis.

DR. SARA M. JORDAN, Boston: The postoperative nutritional care and treatment with liver and iron, which is done routinely in our clinic, we feel, is most important for patients who have had subtotal gastrectomy. It undoubtedly helps in preventing later anemia; furthermore, the matter of nutrition was of interest in the study of the cases. Postoperatively, patients who have had gastrectomy showed a great tendency to be below their normal weight, while the patients who had resection of the colon and even resection of the small intestine had difficulty in restraining the gain in weight. This fact was an interesting commentary on the digestive processes but may possibly be due to the fact that the colectomy patients, of course, use a diet which is intended to produce formed stools and which probably is also more fattening. Dr. Bockus asked the question whether I felt that these patients were better off even if they did have postoperative trouble. There I think we again have to classify the cases. Those who have an intractable ulcer, e. g. the duodenal ulcer, intractable because it is on the posterior wall of the duodenum and penetrating into the pancreas, are definitely better off, I feel, if the intractability is due to symptoms which result from even mechanical or possibly chemical causes. Hemorrhage, however, still presents a real problem. A patient who has been operated on for multiple hemorrhages, and hemorrhages again after a subtotal gastrectomy, finds himself in a distressing situation, and I think the patient would have to answer the question for himself whether the postoperative hemorrhage which he has occasionally is better or worse than what he had before operation. The outlook in such a case is dubious as far as good results are concerned. With regard to colectomy for ulcerative colitis, I think it presents the most difficult question in gastroenterology: when surgical operation is called for in these desperate cases. Surgeons are really not anxious to operate on these patients because they, too, feel the responsibility of the situation. We try to treat them as long as we feel there is a chance of helping them medically. The two points I brought out are most important here: (1) the possibility of spontaneous remission or cure and (2) the possibility of a discovery tomorrow or the next day of a cause for ulcerative colitis which will make this radical surgery unnecessary.

Clinical Notes, Suggestions and New Instruments

AN EASILY CONSTRUCTED WANGENSTEEN SUCTION APPARATUS

E. E. MYERS, M.D., PHILIPPI, W. VA.

There is a definite need for an inexpensive, easy to operate, foolproof apparatus to provide suction of the Wangenstein type. The last two desiderata are provided by machines now obtainable from surgical supply houses, but the item of expense prevents most hospitals from possessing as many machines as they would like to have.

The accompanying illustration shows a suction apparatus inexpensive and easily constructed, simple in design and convenient in operation. This apparatus embodies a new principle, in that both bottles are kept in the inverted position, making the connections and operation simpler.

The construction, briefly described, is as follows: The stand is made from 1 inch (2.5 cm.) pipe and is 5½ feet (167.6 cm.)



The suction apparatus set up ready for use.

high; the base is 22 inches (55.8 cm.) wide. The center of the base employs a "cross with side outlet." The wheel at the top is a clothesline pulley, obtainable at most hardware stores. This is plated to a ¾ inch (1.9 cm.) pipe which, when threaded, tapers sufficiently to fit tightly into the 1 inch pipe. The support for the upper bottle is made from a piece of strap iron bent around the pipe stand, held with a bolt and wing nut and having a ¼ inch (0.64 cm.) soft iron bar welded to it. The lower support, which holds the tube from the collecting bottle, is made from strap iron having a hole in the end through which the tube from the collecting bottle is placed. A short piece of rubber tubing passes through the hole, which is barely larger than the tubing. Above is a Sim's nozzle and below a straight connecting tube. This arrangement keeps the tube in position.

In each bottle are two glass tubes; one goes the length of the bottle and the other just through the rubber stopper. The short tubes are connected together with a long piece of rubber tubing, and the long tube of the upper bottle is attached to the collecting bottle. In operation, when the upper bottle is empty the Sim's nozzle is disconnected from the short piece of rubber tubing attached to the upper bottle and the position of the bottles changed. This is easily done by pulling down on the one while the other is lifted. The Sim's nozzle is then connected to the rubber tube of the raised bottle, and suction is produced by the flow of water to the lower bottle. It is advisable to clamp off the tube from the collecting bottle during the change, in order to maintain suction.

A word of caution in the use of this apparatus: The support for the collecting tube is essential, because without it the bottles might be changed in position without disconnecting this tube and air forced back into the patient. Glass connecting tubes on either side of the support prevent the tube from sliding through the support, and as long as the apparatus is set up in the manner described there is no danger of this kind.

The holders for the bottles can be made from canvas, wire, metal bands or, as shown in this equipment, from rings and rope. Harness rings 1¼ inches (3.1 cm.) in diameter are used for support of the bottles on the horizontal bar. The rubber stoppers are held in the bottles by stout twine tied in the manner illustrated in an article by Wangenstein.¹ Sash cord is used over the pulley to support the bottles.

The instrument has this advantage, that the degree of negative pressure can be easily varied if desired by changing the position of the horizontal bar on the stand.

The cost for the materials used does not exceed \$5, and the entire apparatus should be made for less than \$10.

The Myers Clinic Hospital.

Special Article

GLANDULAR PHYSIOLOGY AND THERAPY

CORPUS LUTEUM HORMONE

GEORGE W. CORNER, M.D.

BALTIMORE

This special article is published under the auspices of the Council on Pharmacy and Chemistry. It is one of a series which will be published in book form as the second edition of "Glandular Physiology and Therapy." The opinions expressed in this article are those of the author and do not necessarily represent the views of the Council.—Ed.

FUNCTION OF THE CORPUS LUTEUM

Speaking broadly, the endocrine function of the corpus luteum is now well understood. The gland is a part of the mechanism of pregnancy. When an ovum begins its journey through the fallopian tube, the follicle from which it took origin gives place to the corpus luteum, and this organ thereupon delivers into the blood stream a substance, progesterone, that has the property of causing extensive development of the endometrium, preparing the uterus for the reception and nutrition of the embryo.

Action on the Uterine Mucosa.—The action of the corpus luteum on the uterus is best known in the rabbit, because that species especially has been used for experiments with progesterone. About two days after the formation of the corpora lutea or after the beginning of a course of treatment with progesterone, rapid cell division begins in the epithelium, resulting in a downgrowth of the glands and ultimately in branching so profuse that the endometrium is crowded full of glands. The cells of the surface epithelium also increase in number by mitotic division so that the surface is folded. The epithelial cells, both on the surface and in the glands, become taller and acquire a more definitely columnar arrangement, presenting finally the appearance of secretory activity.

Accompanying this intense wave of epithelial proliferation there is marked engorgement of the endometrial blood vessels. By the fifth day the cells no longer divide, presumably because they have been converted to the secretory state, and the progravid condition is well established.

Because the implantation of the embryo (which these changes serve to promote) differs considerably in

1. Wangenstein, O. H., and Paine, J. R.: Treatment of Acute Intestinal Obstruction by Suction with Duodenal Tube, J. A. M. A. 101: 1532 (Nov. 11) 1933.

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different animals, the progestational proliferation differs also in detail. In the domestic pig, for example, with its superficial and noninvasive placentation, it is only the surface epithelium of the uterine lining which comes into contact with the embryonic tissues; therefore the effect of the corpus luteum is chiefly on the surface cells.

In the human and the other primate species, on the contrary, the implantation is invasive, and the progestational proliferation consequently affects chiefly the glands and the stroma, producing the well known "premenstrual" endometrium, in which the glandular epithelial cells become very high, with frayed surfaces, and the glands are dilated and acquire serrated contours. Glycogen is deposited in the epithelium, and the connective tissue cells of the stroma begin to enlarge in preparation for decidual change if pregnancy ensues.

By the time the fertilized ovum reaches the uterus, the endometrium is therefore already in a state of heightened secretory activity, by which (presumably) nutritive substances are provided for the embryo. The nature of this favorable chemical action is not yet clearly known; the experiments of Pincus¹ suggest that glutathione is secreted into the uterus and stimulates growth of the early embryo and of the endometrium itself.

When the embryo, thus nourished by the secretory activity of the endometrium, goes on to the stage of implantation, its requirements are met by another response of the uterus under the influence of the corpus luteum. The endometrium in some way is sensitized so that it responds to the presence of the embryo by forming the maternal part of the placenta (and the decidua, in those species in which the endometrial stroma becomes deciduous). This effect is well seen in the guinea pig, in which Loeb showed long ago that even in the nonpregnant animal the presence of corpora lutea in the ovaries is sufficient to induce in the uterus a special state during which any mechanical irritation (such as the presence of a small foreign body or a scratch) will produce a mass of decidual tissue exactly as if the embryos had been there to call it forth by the stimulus of their implantation.

Experiments have amply shown that removal of the corpus luteum during the early part of pregnancy causes failure of implantation of the embryo; if the embryo is already implanted, removal of the corpus causes destruction of the pregnancy.

Conversely, extracts of the corpus luteum that are administered to animals castrated during early pregnancy are able to replace the missing secretion and to maintain pregnancy.

Action on Uterine Muscle.—In addition to its progestational effect on the uterine mucosa, progesterone acts also on the uterine muscle, diminishing its spontaneous contractions and thus rendering the uterus quiescent. This probably also serves to facilitate attachment of the embryo, by inhibiting movements of the uterine wall which might hamper implantation at the critical time when the embryo is settling down at its site of attachment.

Although this action of progesterone varies considerably in different species, there is good evidence that it occurs in the human species.² This is important

in connection with therapy, for it suggests the possibility that the substance may be useful not only for its specific effects on the endometrium but also for its sedative action on irritability of the myometrium.

So far as is known at present, the corpus luteum has no useful action except in pregnancy, but in most mammals (including the human species) the gland is formed in every cycle, in anticipation (so to speak) of pregnancy, and therefore in each human cycle the corpus luteum normally acts for about two weeks, bringing about the so-called premenstrual stages of the endometrium. When it retrogresses, menstruation ensues. Thus in the adult nonpregnant human female the corpus luteum is functioning about half the time, and takes part in the general physiology of the body to that extent. In animals with less frequent cycles the proportion of time during which the corpus luteum functions is much less; obviously, therefore, it is not necessary for general well-being.

PROGESTERONE

The substance elaborated by the corpus luteum which gives the effects described was first extracted in crude form from the ovaries of swine by Corner and Allen³ and by Hisaw, Meyer, Weichert and Fevold⁴ and was partially purified by Allen.⁵ Investigations by Butenandt and Westphal,⁶ by Slotta, Ruschig and Fels⁷ and by Allen and Wintersteiner,⁸ all of whom obtained the active factor in the pure state practically simultaneously, revealed that progesterone is a crystalline steroid having the formula $C_{21}H_{30}O_2$. It is closely related to the natural estrogens and androgens.

A number of other substances, closely related chemically to the ones just mentioned, have been found to have the same effect on the uterus as progesterone, but only in much larger doses. Pure progesterone exists in two different crystalline forms, one melting at 128 C. (α progesterone) and the other at 121 C. (β progesterone). It has been produced synthetically from the vegetable sterol known as stigmasterol; the material now on the market is presumably made by similar methods from this or another sterol. By general agreement of the investigators concerned, the name "progesterone" is used for the pure principle; the term "progestin" is used to indicate the whole group of substances having similar action and to describe such a factor when present in a partially purified state or when not fully identified chemically.

Progesterone is administered by intramuscular injection, in solution in a vegetable oil; it cannot be given by mouth, because either it is not absorbed from the gastrointestinal tract or it is inactivated by the processes of digestion. In 1939 pregnenolone, a substance

1. Pincus, Gregory: The Metabolism of Ovarian Hormones, Especially in Relation to the Growth of the Fertilized Ovum, in Cold Spring Harbor Symposia on Quantitative Biology, 1937, vol. 5, p. 44.
2. Reynolds, S. R. M.: Physiology of the Uterus, with Clinical Correlations, New York, Paul B. Hoeber, Inc., 1939.
3. Corner, G. W., and Allen, W. M.: Physiology of the Corpus Luteum: II. Production of a Special Uterine Reaction (Progestational Proliferation) by Extracts of the Corpus Luteum, Am. J. Physiol. 88: 326 (March) 1929.
4. See Allen, W. M.: Biochemistry of the Corpus Luteum Hormone, and Internal Secretions, ed. 2, Baltimore, Williams & Wilkins Company, 1939, chap. 15, p. 901-928.
5. Allen, W. M.: Physiology of the Corpus Luteum: V. The Preparation and Some Chemical Properties of Progestin, a Hormone of the Corpus Luteum Which Produces Progestational Proliferation, Am. J. Physiol. 92: 174 (Feb.) 1930.
6. Butenandt, Adolf, and Westphal, U.: Zur Isolierung und Charakterisierung des Corpus-luteum-Hormons, Ber. d. deutsch. chem. Gesellsch. 67: 1440, 1934.
7. Slotta, K. H.; Ruschig, H., and Fels, E.: Reindarstellung der Hormone aus dem Corpus-luteum, Ber. d. deutsch. chem. Gesellsch. 67: 1270, 1934.
8. Allen, W. M., and Wintersteiner, Oskar: Crystalline Progestin, Science, 80: 190 (Aug. 24) 1934.
9. Butenandt, Adolf; Westphal, U., and Cobler, H.: Ueber einen Abbau des Stigmasterins zu Corpus-luteum-wirksamen Stoffen; ein Beitrag zur Konstitution des Corpus-luteum-Hormons, Ber. d. deutsch. chem. Gesellsch. 67: 1611, 1934. Fernholz, E.: Zur Synthese des Corpus luteum-Hormons, ibid. 67: 1855, 1934.

closely related to progesterone, was found to be effective when given by mouth.¹⁰ This drug is now available commercially, but at the time of writing little clinical experience with it has been reported.

In castrated rabbits progesterone readily produces progestational changes in the uterus; in rabbits castrated during early pregnancy it will protect the embryos by substituting for the product of their mother's corpora lutea and will maintain the pregnancy to full term. In guinea pigs it sensitizes the uterus to produce the maternal part of the placenta (Loeb's deciduoma).

In castrated women the premenstrual state of the endometrium can be produced by administering large doses of estrogen to bring the uterus back to its normal interval stage and then progesterone to effect the premenstrual changes. In monkeys progesterone has been shown to inhibit menstruation; but if a course of treatment with progesterone is given to the normal animal, or to a castrated animal suitably prepared with estrogen, menstruation inevitably follows discontinuance of the progesterone. Similar effects have been seen in human subjects.

International Unit; Assay.—In 1935 a conference under the auspices of the League of Nations adopted an international standard of potency, which was defined as the amount of progestational activity present in 1 mg. of progesterone. This international unit has been generally adopted. The assay is usually performed by administering the preparation to be tested for five days to an adult female rabbit that has been mated and then castrated, or to an immature rabbit of about 600 Gm. weight which has been primed with five to ten daily doses of estrogen preceding the course of treatment with the test preparation. The progestational effect on the endometrium is estimated microscopically from sections of the uterus. Before the League of Nations standard was set up, various investigators were making use of other units. The Corner-Allen unit, based on use of the adult rabbit for assay and commonly cited in the American literature, is approximately equal to the international unit; the Clauberg unit, based on the immature rabbit, represents about 0.6 international unit.

Pregnandiol.—Endocrinologists owe to Venning and Browne¹¹ the demonstration that pregnandiol, a substance chemically related to progesterone and already known to exist in the urine of pregnant women, is actually derived from progesterone and represents the latter's excretion product. Pregnandiol as it appears in the urine is conjugated with glycuronic acid to form a water-soluble compound, sodium pregnandiol glucuronide. Since each molecule of pregnandiol represents one molecule of progesterone, the amount of the former substance recovered from the urine in a given period gives at least a rough measure of the functional activity of the corpus luteum, although losses during excretion and during chemical manipulation, amounting perhaps to 50 per cent, prevent an exact measure of the progesterone output.

In the normal menstrual cycle pregnandiol appears in the urine about twelve days before the onset of menstruation (i. e., a day or two after ovulation). The excretion reaches a peak about one week before menstruation and usually ceases two or three days before the onset of bleeding. The curve of pregnandiol

excretion thus closely parallels the rise, activity and retrogression of the corpus luteum. From several investigations¹² one learns that the daily output at the peak, though variable, is of the order of 5 mg. of pregnandiol daily, and this may be conjectured to mean that the corpus luteum when most active produces something like 10 mg. of progesterone per day.

In pregnancy the output of pregnandiol begins to rise about the seventieth to the ninetieth day and in the ninth month may reach 60 to 100 mg. daily.¹³ It is generally agreed that the large amount of progesterone indicated by these figures is not made by the corpus luteum but by the placenta.

CLINICAL POSSIBILITIES

Progesterone is now available in the drug trade, and the price, though still high, has been reduced sufficiently to make its use possible. Progesterone therapy is still, however, in the stage of experiment, and all the physician can do at present is to follow with caution the lead of the more critical clinical investigators as they progress. The clues given by its known effects on the endometrium and myometrium have naturally suggested its use in recurrent and threatened abortion, in dysmenorrhea, in after-pains of the early puerperium and in so-called functional uterine bleeding.

Recurrent Abortion.—Since the corpus luteum, as already shown, plays an essential part in promoting the growth and implantation of the early embryo and is necessary for maintenance of pregnancy during its earlier period, it is obvious that failure of the corpus luteum may be at times the cause of abortion. Such a result might be due to failure either of the progestational ("premenstrual") secretory reaction of the endometrium or to nonoccurrence of the quiescent state of the endometrium induced by progesterone or to both. Evidence has been obtained by Browne, Henry and Venning^{13b} from estimations of pregnandiol excretion that in certain cases spontaneous abortion is indeed associated with diminished function of the corpus luteum. In such cases the condition should be relieved by treatment with progesterone. It is also possible that progesterone might be useful in preventing spontaneous abortion from other causes; by its property of inhibiting uterine motility it might act to reduce crampy uterine contractions no matter what their cause. There have been a number of favorable reports on progesterone therapy for recurrent abortion. Obviously, the results must be considered critically, for it is never possible to know in any individual case what would have happened without therapy. Statistical criteria for judging the results have recently been laid down by Malpas¹⁴ and by MacGregor and Stewart.¹⁵ Women who have aborted spontaneously three times are statistically almost certain to abort again if they become pregnant;

12. (a) Venning, E. H., and Browne, J. S. L.: Studies on Corpus Luteum Function: II: Urinary Excretion of Sodium Pregnandiol Glucuronide in the Human Menstrual Cycle, *Endocrinology* 21: 711 (Nov.) 1937. (b) Hamblen, E. C.; Ashley, Catharine, and Baptist, Margaret: Sodium Pregnandiol Glucuronide: The Significance of Its Excretion in the Urine, *ibid.* 24: 1 (Jan.) 1939. (c) Wilson, R. B.; Randall, L. M., and Osterberg, A. E.: Studies on Pregnandiol, *Am. J. Obst. & Gynec.* 37: 59 (Jan.) 1939. (d) Stover, R. F., and Pratt, J. P.: Progestin Studies: Pregnandiol Excretion, *Endocrinology* 24: 29 (Jan.) 1939. (e) Müller, H. A.: Die Pregnandiolausscheidung im Harn als Spiegelbild der Funktion des Corpus luteum, *Klin. Wehnschr.* 19: 318 (April 6) 1940.

13. (a) Smith, G. V., and Smith, O. W.: Estrogen and Progestin Metabolism in Pregnant Women, *Am. J. Obst. & Gynec.* 39: 495 (March) 1940. (b) Browne, J. S. L.; Henry, J. S., and Venning, E. H.: The Significance of Endocrine Assays in Threatened and Habitual Abortion, *ibid.* 38: 927 (Dec.) 1939. Wilson and others.^{12c}

14. Malpas, Percy: A Study of Abortion Sequences, *J. Obst. & Gynaec. Brit. Emp.* 45: 932 (Dec.) 1938.

15. MacGregor, T. N., and Stewart, C. P.: Investigation of Cases of Recurrent Abortion and Their Treatment with Progesterone, *J. Obst. & Gynaec. Brit. Emp.* 46: 857 (Oct.) 1939.

10. Hohlweg, Walter, and Inhoffen, H. H.: Pregnenionol, ein neues per os wirksames Corpus luteum-Hormonpräparat, *Klin. Wehnschr.* 18: 77 (Jan. 21) 1939. Clauberg, C., and Uestün, Ziya: Menstruation—per os erzeugt, *Zentralbl. f. Gynäk.* 62: 1745 (Aug. 6) 1938.

11. Venning, E. H., and Browne, J. S. L.: Isolation of a Water-Soluble Pregnandiol Complex from Human Pregnancy Urine, *Proc. Soc. Exper. Biol. & Med.* 34: 792 (June) 1936.

such patients afford a real test of therapeutic effects, and if pregnancy is maintained, it is probable that the treatment was useful. The latest investigators rather cautiously agree that progesterone is a valuable agent in such cases.¹⁶ Treatment should be begun as soon as pregnancy is suspected. Not less than 1 mg. daily is to be given, and preferably more, up to 5 or even 10 mg. If, as seems likely, the placenta supplies the hormone after about the third month, progesterone treatment is probably unnecessary thereafter.

Threatened Abortion.—It has been observed repeatedly that the cramps and bleeding which indicate a threatened abortion may subside after the injection of 1 mg. or more of progesterone, probably because this substance inhibits uterine motility and causes growth of the endometrial tissue. In such cases, if viability of the fetus is indicated by clinical signs and a urinary test for pregnancy (Aschheim-Zondek, Friedman) is positive, the patient should be put at rest and given progesterone in ample dosage (not less than 1 international unit daily, and if possible, 5 or even 10) until the symptoms subside. After this, 1 unit daily may be given until it is thought safe to let the patient get up; thereafter less frequent doses are probably indicated until late in pregnancy. If symptoms recur, more intensive treatment may be resumed.

The advice to use relatively large doses, given in the foregoing paragraphs, follows the trend of sound clinical and laboratory experience and agrees, moreover, with the known rate of normal secretion by the human corpus luteum (see foregoing section on pregnandiol; during the third month, the most critical period for abortion, the normal patient is probably producing 15 to 40 mg. of progesterone.) Clinical results from very small doses, representing fractions of 1 unit per day, have been reported. It is perhaps possible that such small doses may at times serve by a trigger-like action or by redressing a delicate imbalance, but in the present state of knowledge 1 mg. per day is surely the least quantity that could conceivably affect the human body. There has never been any report of harmful effects from progesterone, in animals or women, even with large doses.

Dysmenorrhea.—Investigators have no satisfactory and comprehensive explanation of the cause of primary dysmenorrhea, and in all probability the condition is not a single clinical entity. The use of progesterone has sometimes been based on special hypotheses about endocrine factors in dysmenorrhea and sometimes on the hope that the substance may relieve pain by its property of reducing the irritability of the myometrium. Results must be judged critically, in view of the great importance of psychic and other general factors in such conditions. It is, however, reliably reported that a few sufferers from primary dysmenorrhea have received striking benefit and that about 25 to 50 per cent have been definitely helped by progesterone. Treatment should begin three or four days before the expected onset of menstrual pain. One or 2 international units per day may be given at first, but if necessary the dose should be pushed up to 5 units or more before abandoning the experiment.

A thorough, well controlled study of this question is greatly to be desired.

After-Pains.—As shown by Lubin, Clarke and Reynolds,¹⁷ pain due to uterine contractions following

parturition is promptly relieved by 1 international unit of progesterone. No harmful effects have been reported, although theoretically at least there is a possibility of harm from relaxation of the uterus.

Metrorrhagia and Menorrhagia; Amenorrhea.—In the normal menstrual cycle the corpus luteum is present during the second half of the interval; the menstrual flow begins when the corpus luteum degenerates. Administered progesterone in normal monkeys postpones natural menstruation, and in castrate monkeys suppresses the artificial menstruation produced by estrogen deprivation.¹⁸ Progesterone has therefore been tried therapeutically in metrorrhagia and menorrhagia, and favorable results have been reported. In the special case of bleeding associated with glandular hyperplasia of the endometrium, another physiologic reaction may play a part. This disease is generally considered, on experimental grounds, to result from overaction of estrogenic hormones on the endometrium; progesterone may act beneficially either by cutting down the effectiveness of the estrogens, as it seems to do in the normal cycle,¹⁸ or by producing changes of the premenstrual type and thus in some way counteracting the tendency to bleeding. Until one knows exactly why the uterus bleeds in normal menstruation and in functional uterine disease, one can hardly offer a more precise explanation of therapeutic hopes or results.

For the present the treatment of functional bleeding must be left to specialists in gynecologic endocrinology for cautious experimentation after skilled clinical analysis of each case. Because of the danger that abnormal bleeding may be due to a benign or a malignant tumor, the general physician should not administer progesterone for uterine hemorrhage.

As to amenorrhea, endocrinologists know as yet little about the hormonal relations of such disturbances of the cycle. Here again the use of ovarian products is still quite experimental and must be worked out by clinical specialists.

Other Conditions.—Now that progesterone is becoming generally available, it is inevitable that it will be tried, both rationally and irrationally, for all sorts of diseases; such efforts are to be received with caution. Already there are reports of its use in the treatment of certain types of rhinorrhea, arthritis and disturbances of the thyroid. "Corpus luteum therapy" for hyperemesis gravidarum, once attempted with orally administered glandular preparations but long abandoned, is being revived with progesterone. Serious attempts are being made to relieve toxemias of pregnancy, especially eclampsia, with this substance, though apparently thus far without statistically better results than can be achieved by conservative general treatment.

EMPIRIC PREPARATIONS

A number of corpus luteum preparations are still on the market in tablet form for oral administration or in aqueous solution, which are not assayed for progesterone and contain at most very small amounts of this factor. The methods of preparation or of administration are often such as to remove or to destroy the progesterone; if these preparations contain any other useful substance, it is something unknown to science. Their use is quite empiric, and they will no doubt become obsolete now that genuine assayed progesterone-containing products are available.

16. Browne and others.^{16b} MacGregor and Stewart.¹⁷
17. Lubin, Samuel; Clarke, F. J., and Reynolds, S. R. M.: The Relation of After-Pains to Uterine Contractions Following Administration of Progestin, *Am. J. Obst. & Gynec.* 33: 143 (Jan.) 1937.

18. Corner, G. W.: The Ovarian Hormones and Experimental Menstruation, *Am. J. Obst. & Gynec.* 38: 862 (Nov.) 1939.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

GENERAL AUTOMATIC ULTRA VIOLET SOLEIL LAMP, MODEL E-43 ACCEPTABLE

Manufacturer: General Automatic Corporation, Macedonia, Ohio.

The General Automatic Ultra Violet Soleil Lamp, Model E-43 provides ultraviolet radiation within the limits of the standards set by the Council for devices using the term "sunlamp." These standards require that the energy of wavelengths shorter than and including 2,800 angstroms shall not exceed 1 per cent of the total energy of wavelengths between 2,804 and 3,132 angstroms. Since these wavelengths fall in the spectral region of low erythematogenic action, the sunlamp is suitable for unsupervised use by the layman.

The S-4 burner used in the lamp is a Westinghouse unit. The firm submitted the following data:

Burner input watts	120
Total watts required	250
Line voltage	110-120
Primary amperes	2.2
UV output at 30", m. w. per cm ²	75
Rated burner life in hours.....	400

The lamp operates only on alternating current. Spectral ultraviolet radiation measurements were made on the S-4 lamp in a laboratory selected by the Council. These measurements showed that the radiation of wavelengths shorter than 2,800 angstroms is immeasurably small, and hence these lamps qualify as sunlamps as far as spectral quality (wavelength) of radiation is concerned.

In this investigation the lamp was placed close in front of the quartz-fluorite achromatic spectroradiometer, and the spectral intensities were measured with a vacuum thermopile. The relative spectral intensities (galvanometer deflections) corrected for absorption in the spectroradiometer are given in the accompanying table.

General Automatic
Ultra Violet Soleil
Lamp, Model E-43.



The radiation at 2,804 angstroms (and shorter if measurable) is about 0.75 per cent of the total wavelengths, including 3,132 angstroms and shorter. Mounted in an aluminum reflector the radiation at 2,894 angstroms and shorter, relative to the total, would be still lower; hence these lamps comply with the Council's requirements for acceptability of a sunlamp for spectral quality of ultraviolet radiation.

Relative Spectral Intensities

Wavelengths (Angstroms)	Relative Energy (Average of 3 Lamps) Microwatts per Square Cm.
3,132	7.96
3,024	2.59
2,967	1.15
2,894	0.28
2,804	0.09
Total	12.07

The S-4 burner is mounted in what is stated by the firm to be a "true parabolic reflector" 10½ inches in diameter and spun from 20 gage aluminum, with a highly polished reflecting surface. The operating switch is built in the lamp head above the reflector. A horizontal arm supports the reflector and is mounted on a vertical stand, which also is adjustable. The base is

14 inches in diameter, weighs 26½ pounds and is equipped with four ball bearing casters. The net weight of the unit is 35 pounds.

The Council on Physical Therapy voted to accept the General Automatic Ultra Violet Soleil Lamp, Model E-43 for inclusion on its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

OFFICE OF THE SECRETARY.

SULFAPYRIDINE (See New and Nonofficial Remedies, 1940, p. 494).

The following dosage forms have been accepted:

Tablets Sulfapyridine 0.5 Gm. (7½ grains).

Prepared by Eli Lilly & Co., Indianapolis.

No U. S. patent or trademark.

Pulverules Sulfapyridine 0.25 Gm. (3¾ grains).

Prepared by Eli Lilly & Co., Indianapolis.

No U. S. patent or trademark.

LIVER LIQUID PARENTERAL 4 U. S. P. INJECTABLE UNITS PER CC.-ARMOUR.—A sterile aqueous solution containing the nitrogenous nonprotein fraction G of Cohn preserved with 0.3 per cent of cresol. The daily intramuscular administration of 0.25 cc. of liver liquid parenteral-Armour has been demonstrated to produce a satisfactory hemopoietic response defined as 1 U. S. P. unit (injectable) when assayed in cases of pernicious anemia as required by the Council.

Actions and Uses.—Liver liquid parenteral-Armour is proposed for intramuscular injection in the treatment of pernicious anemia. See general article Liver and Stomach Preparations, New and Nonofficial Remedies, 1940, p. 320.

Dosage.—The daily administration of 0.5 cc. (2 U. S. P. injectable units) for six days is recommended. After this period the dose may be reduced to 0.25 cc. (1 U. S. P. injectable unit) daily until the blood picture is satisfactory. Thereafter, either the volume of the dose or the time interval between doses is adjusted according to the individual patient's needs.

Manufactured by the Armour Laboratories, Chicago. No U. S. patent or trademark.

Vials Liver Liquid Parenteral 4 U. S. P. Injectable Units per cc.-Armour, 1 cc.

Vials Liver Liquid Parenteral 4 U. S. P. Injectable Units per cc.-Armour, 5 cc.

Vials Liver Liquid Parenteral 4 U. S. P. Injectable Units per cc.-Armour, 10 cc.

To prepare liver liquid parenteral-Armour fresh U. S. government inspected mammalian livers (minced finely) are mixed with three volumes of water, then macerated and heated to 85° C. to remove coagulable protein. The resulting mixture is condensed in vacuo at low temperature to syrup consistency. Ethyl alcohol is added to a concentration of 70 per cent. The mixture is allowed to stand for eighteen hours or over night. The alcohol solution is withdrawn and placed under refrigeration for several days until no further precipitation occurs. The clear liquid is siphoned off, and the alcohol removed by negative pressure at low temperature. The resultant residue is dissolved in distilled water and adjusted so that 1 cc. represents 100 Gm. of fresh liver tissue. Cresol U. S. P., 0.3 per cent, is added and the liquid allowed to stand in the aseptic room until no further precipitation occurs. The clear supernatant liquid is passed through a Berkefeld filter and filled into 1, 5 and 10 cc. rubber-capped vials under aseptic conditions. The contents of the vials are tested for sterility and tissue irritants, such as toxic amines, before the product is released.

SODIUM IODIDE.—"When dried to constant weight at 120° C., contains not less than 99 per cent Nal. It contains not more than 5 per cent of water." U. S. P.

For standards see the U. S. Pharmacopeia under Sodii Iodidum.

Actions, Uses and Dosage.—See the general article Iodine Compounds for Systemic Use (New and Nonofficial Remedies, 1940, p. 290).

The following dosage forms have been accepted:

Ampules Sodium Iodide-Lakeside, 1.0 Gm. (15¼ grains), 10 cc.

Prepared by the Lakeside Laboratories, Inc., Milwaukee.

Ampules Sodium Iodide-Lakeside, 2.0 Gm. (31 grains), 10 cc.

Prepared by the Lakeside Laboratories, Inc., Milwaukee.

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SATURDAY, FEBRUARY 15, 1941

THE PROPHYLAXIS OF RHEUMATIC FEVER

Although some evidence¹ tends to show that sulfanilamide is without therapeutic effect (and may even be dangerous) in the treatment of rheumatic fever, the reports of Thomas and France² in Baltimore and of Coburn and Moore³ in New York have indicated that the drug may be of prophylactic value in preventing the recurrence of rheumatic attacks. Its experimental use for this purpose was based on the series of observations made by Coburn during the past decade, which relate rheumatic activity to the presence of hemolytic streptococcus infections of the rhinopharynx.

Both groups of investigators thought that, if these infections of the throat could be prevented, rheumatic recrudescences might not occur. To accomplish this result, small doses of sulfanilamide were given daily to rheumatic subjects during the period of the year (October to June or July) in which the incidence of streptococcal infections of the pharynx is highest. The Baltimore investigators found that major rheumatic recrudescences did not occur in the groups which received sulfanilamide prophylaxis, while in New York, Coburn and Moore⁴ state that in their group of rheumatic subjects who were treated in a like manner "the incidence of rheumatic fever . . . was less than 1 per cent."

In this issue of THE JOURNAL Thomas, France and Reichsman⁵ report that, during the last four years, major rheumatic incidents were not observed in groups

of known rheumatic subjects who had been placed on daily prophylactic doses of sulfanilamide during the fall, winter and spring months. Another interesting point brought out in this paper is that the toxic effects resulting from this prolonged dosage with sulfanilamide were negligible.

While these reports present a hopeful picture for the use of sulfanilamide in the prophylaxis of rheumatic fever and certainly show that the drug may be used in small daily doses for long periods with comparative safety, the final evaluation of this method of prevention awaits results obtained in large, carefully controlled series of young rheumatic subjects. In view of the widespread occurrence and the crippling effects of rheumatic fever, it is to be hoped that interest in and support for such projects will be sufficient to permit a final evaluation of this promising lead in the prevention of rheumatic fever.

NONENDOCRINE THERAPY OF ENDOCRINE DISORDERS

The series of special articles comprising the second edition of *Glandular Physiology and Therapy*, now being published in THE JOURNAL under the auspices of the Council on Pharmacy and Chemistry, indicates progress in the treatment of glandular disorders and the increased availability of numerous potent endocrine preparations. These substances are being widely used for substitution, stimulation or suppression of glandular activity. The treatment of endocrine disorders is not, however, necessarily limited to the use of hormonal substances. When the mechanism of the hormonal action is understood, the therapeutic problem may sometimes be attacked successfully by the use of non-endocrine substances whose concentration in the body has been disturbed by the endocrine dysfunction. For example, in Addison's disease or insufficiency of the adrenal cortex, excretion of sodium is increased, and this is responsible for many of the symptoms and signs. Although the administration of cortical steroids restores the sodium concentration of the tissues, an increase in the intake of sodium salts (as sodium chloride) alone may correct significantly the disturbances due to adrenal insufficiency.

Similarly, a method has been recently devised for the treatment of premenstrual distress or tension without endocrine therapy. Greenhill and Freed¹ have postulated, on the basis that the ovarian hormones, among other steroids, have the property to cause salt and water retention in the body, that symptoms of distress which occur during the premenstrual period may be due to edema of the various organs of the body. Thus, certain types of "premenstrual" migraine,

1. Greenhill, J. P., and Freed, S. C.: Mechanism and Treatment of Premenstrual Distress with Ammonium Chloride, *Endocrinology* 26: 529 (March) 1940.

1. Massell, B. F., and Jones, T. D.: The Effect of Sulfanilamide on Rheumatic Fever and Chorea, *New England J. Med.* 218: 876 (May 26) 1938. Swift, H. F.; Moen, J. K., and Hirst, G. K.: The Action of Sulfanilamide in Rheumatic Fever, *J. A. M. A.* 110: 426 (Feb. 5) 1938.
2. Thomas, Caroline B., and France, Richard: A Preliminary Report of the Prophylactic Use of Sulfanilamide in Patients Susceptible to Rheumatic Fever, *Bull. Johns Hopkins Hosp.* 64: 67 (Jan.) 1939.
3. Coburn, A. F., and Moore, Lucile V.: The Prophylactic Use of Sulfanilamide in Streptococcal Infections with Especial Reference to Rheumatic Fever, *Subjects*, 1: 147 (Jan.) 1939; The Prophylactic Use of Sulfanilamide in Rheumatic Subjects, *M. Clin. North America* 24: 633 (May) 1940.
4. Coburn, A. F., and Moore, Lucile V.: The Prophylactic Use of Sulfanilamide in Patients Susceptible to Rheumatic Fever, *this issue*, p. 551.
5. Thomas, Caroline B.; France, Richard, and Reichsman, Franjo: The Prophylactic Use of Sulfanilamide in Patients Susceptible to Rheumatic Fever, *this issue*, p. 551.

irritability, nausea, abdominal distention and frank edema were explained by the increase in extracellular fluid of the central nervous system, intestine and subcutaneous tissue. These investigators have administered from 2 to 3 Gm. of ammonium chloride daily, or approximately one fourth to one half the average diuretic dose, to patients during the last half of the menstrual cycle in order to combat the increase in extracellular fluid following sodium retention. They report that this therapy eliminated to a large extent the development of the premenstrual distress or tension in a large proportion of their patients. Since premenstrual distress is of common occurrence, this therapeutic procedure would seem to be a useful contribution.

While much progress may be made through the use of endocrine preparations, therapy with these substances is not necessarily the ideal or only method of treating some endocrine disorders. Consideration of the fundamental properties of hormones may possibly lead to shortcuts in the correction of the appropriate dysfunction. Other methods, including surgery and radio-therapeutic measures, may be better indicated in some conditions than the administration of glandular principles.

PHYSICIANS OFFERED A "DEAL"

On January 13 postcards were mailed to various physicians in the Indiana area which read as follows:

Dear Doctor:—I would like to enter into an arrangement with you, requiring your full time service away from your office. Attractive opportunity and fine remuneration. Office space is provided. This is a permanent arrangement. The proposition is in Anderson, Indiana. If you are interested, wire collect, giving your phone number, so that I can call you.

B. Sherman
1148 W. Chicago Ave.
Chicago, Illinois

A check of the address indicated that its occupant is the Ritholz Optical Company. The Bureau of Investigation first dealt with the Ritholz optical concerns in an article in *THE JOURNAL*, July 25, 1925. Ten years later, in the July 6, 1935 issue, the Bureau reported, under the title "The Ritholz Frauds," a post office fraud order issued against the concern. Nine different trade styles were listed in this article, although not all of them were named specifically in the fraud order, some of them apparently being local concerns not employing the mails; namely, "Dr. Ritholz Optical Co., Inc.," "Dr. Ritholz Optical Co." and "Ritholz Optical Co." This article also called attention to the fact that the energetic action on the part of the Chicago Better Business Bureau had resulted in barring the facilities of Chicago newspapers and radio stations to these stores. Subsequently the Ritholz concern agreed to advertise in accordance with the standard practice of optometrists, and the Better Business Bureau announced this in its Bulletin. Later

THE JOURNAL carried reports of two law suits involving the National Optical Stores and Benjamin D. Ritholz. The first of these referred to the case of *Ritholz et al. v. North Carolina State Board of Examiners in Optometry et al.*, 18 F. Supp. 409, which was abstracted in *THE JOURNAL*, Dec. 11, 1937, page 2015; the second was that of *Esell et al. v. Ritholz et al.* (S. C.), 198 S. E. 419, which was abstracted in *THE JOURNAL*, July 1, 1939, page 88.

In 1934 the Federal Trade Commission issued an order against Benjamin D. Ritholz of Chicago, doing business under the names Chicago Dentists and Chicago Dental House, Inc., in connection with the promotion of a dental plate in interstate commerce. In 1937, subsequent to the appearance of the fraud order, the Federal Trade Commission issued a complaint against the National Optical Stores and Dr. Ritholz Optical Company for their activities in connection with the promotion of spectacles. Subsequently the Post Office Department issued a fraud order against the Chicago Dentists, Chicago Dental House and International Dental House for using the mails in the promotion of dental plates. In this fraud order Mr. Benjamin D. Ritholz is mentioned as "one of the proprietors of the above named concerns."

Finally, the name of the individual who signs the current postcard addressed to doctors is not new to the A. M. A. files. A card mailed from Louisville, Ky., on Sept. 28, 1936 read as follows:

Dear Doctor:—We have a proposition for a physician in Louisville. Attractive opportunity netting at least \$40.00 per week. Call, wire or telephone

B. Sherman
Brown Hotel
Louisville, Ky.

The Bureau of Investigation was informed by the State Department of Health of Kentucky at that time that this man represented the National Optical Stores Company of Chicago.

In March 1936 a note was mailed to some Ohio physicians from the address of the Ritholz Optical Company Building:

Dear Doctor:—We have an unusual proposition for an oculist which will require full time away from his office. The remuneration will be at least \$40.00 per week. The proposition is in Ohio. Wire or Telephone MONroe 2148 charges collect.

Sincerely yours,

L. Gerew
1148 W. Chicago Ave.
Chicago, Ill.

By engaging repeatedly in such practices, these concerns have shown their total disregard for the welfare of the American people and their desire to make a profit at the expense of the eyesight of the citizens of this country. Their effrontery in attempting to engage unsuspecting physicians to promote their activities is astounding. An ethical physician would not give the slightest consideration to alining himself with such an outfit.

Current Comment

AMERICAN MEDICAL ASSOCIATION ON TRIAL

In the Organization Section of this issue of THE JOURNAL begins the report of the trial on the indictment of the American Medical Association, the District of Columbia Medical Society, the Harris County Medical Society, the Washington Academy of Surgery and many individual physicians, which has been the subject of great medical interest since it was first filed in 1939. The report here published, while not verbatim, is sufficiently inclusive to supply readers with a full account of the proceedings. Indeed the statements to the jury by the attorneys for the prosecution and for the defense are given almost in toto because these two statements seem to indicate the nature of the procedure to be followed. Indications at the time when the trial began were for a duration of from four to six weeks. It is proposed week by week to present the transcript of as much of the evidence as can be made available, considering the difficulties of transcription and preparation of the material.

TRANSMISSION OF BACTERIA IN VENTILATING SYSTEMS

In present day air conditioning systems 90 per cent of the cooled air is often recirculated. The redistribution of air from an infected space to noninfected areas might conceivably become a factor in the spread of disease. In a recent study¹ of the role of ventilating systems in the transmission of micro-organisms, bacteria (*B. subtilis* spores), which can be readily distinguished from other organisms usually found in air, were introduced in two different ventilating systems and the distribution of the spores was studied. The first ventilating system, which was provided with a paper-tissue filter, was located in a small auditorium. In one instance the spores were introduced beyond the filter and were thus not filtered, and in another experiment the spores were introduced in front of the filter and the air carrying them was filtered before being circulated. Fifteen minutes after the spores were introduced beyond the filter, analyses indicated the presence of 21.9 organisms to 10 cubic feet of the air in the auditorium. One hour after the spraying of the spores no organisms could be found in the air. Fifteen minutes after spraying spores in front of the filters only 3.7 organisms were present in 10 cubic feet of the air and after an hour these too had disappeared. In another series of experiments spores were introduced at different points in the ventilating system of a large building. Analyses of the air in two rooms of the building showed a maximum concentration of organisms during the spraying, which in these experiments lasted for a twenty minute period or during a short period (one half hour) thereafter. The number of organisms then decreased rapidly and within a relatively short time the count

returned to a normal level. This rapid decrease is attributable to the dilution factor, and to the action of the filter, as well as to the loss occasioned by surfaces such as the walls and floor. These experiments were made under the most favorable conditions for the transmission of bacteria in ventilating systems, the number of spores being far in excess of that which might be possibly expected to occur normally and the spraying being done at advantageous points, and they demonstrate that bacteria may be spread in this way, although the menace seems slight. The problem merits further study from the point of view of public health.

THE RADIO AND HIGH FREQUENCY APPARATUS

Recently THE JOURNAL called attention to the discussions now going on between members of the medical profession, including representatives of the Council on Physical Therapy of the American Medical Association, and government officials relative to suitable manufacture or control of high frequency apparatus which interferes with radio reception. In Great Britain it has been found desirable in the prosecution of the war to place governmental restrictions on the use of such apparatus. It is now necessary in that country for any person with such apparatus in his possession to have a permit from the postmaster general for its operation. Apparatus included under the control is diathermy and electro-medical equipment which uses valves or spark coils. The unauthorized possession of such apparatus constitutes an offense under the defense regulations. The purpose of control is obviously to reduce the number of sources of electrical disturbance so that proper use of radio as a defense mechanism may continue.

VETERINARY MEDICINE ADVANCES

The increasingly scientific and technical character of veterinary medicine becomes apparent with the appearance of the first issue of the *American Journal of Veterinary Research*.¹ This medium was not established for the publication of surplus technical material. It is planned primarily to reflect some of the newer investigations in the field of veterinary medicine which now emanate not only from divisions of the government and of the state universities which are concerned with veterinary medicine but also from individual practitioners. The first number of this periodical—that for October 1940—contains articles on *Brucella abortus* vaccine, the use of soaps for destroying the streptococci of mastitis as well as research on various infections confined to animals. Some of the contents are concerned with the effect of diet on internal parasites and with ascorbic acid. There are other articles dealing with circulation, respiration and glandular changes in animals. Since much of this research may be of significance to human medicine, it is planned to index the contents of this periodical regularly in the *Quarterly Cumulative Index Medicus*.

1. Dalla Valle, J. M., and Hollaender Alexander: A Study of the Role of Ventilating Systems in the Transmission of Bacteria, Pub. Health Rep. 55: 1268 (July 12) 1940.

1. American Journal of Veterinary Research, published by the American Veterinary Medical Association, 600 South Michigan Avenue, Chicago. Subscription price, \$4 annually.

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

ARMY RESERVE OFFICERS ORDERED TO ACTIVE DUTY WAR DEPARTMENT

The following additional medical reserve corps officers had been ordered to extended active duty by the War Department, Washington, D. C., up to January 24:

ABLE, LeGrand Guerry, 1st Lieut., Spartanburg, S. C.
BAKER, Augustus Lynn, Major, Dover, N. J.
BEINAR, Peter Joseph, 1st Lieut., Chicago.
BRANNAN, Max, 1st Lieut., Coral Gables, Fla.
CALDEN, Willard S., 1st Lieut., Berkeley, Calif.
CASE, Robert Bowen, 1st Lieut., Oakland, Calif.
FRENCH, Adam James, 1st Lieut., Ann Arbor, Mich.
GOAD, Lloyd Henry, 1st Lieut., Oklahoma City.
GREEN, Sydney Harold, 1st Lieut., Alcatraz, Calif.
GREENSTEIN, Carl, 1st Lieut., Sheboygan, Wis.
GUYER, Herbert Bernard, 1st Lieut., Dorchester, Mass.
HAMLIN, Percy Gatling, Major, Williamsburg, Va.
HANNA, John Thomas, Major, Burlington, Iowa.
HARRISON, Charles Samuel, 1st Lieut., Clarksburg, W. Va.
HEIN, Walter Francis, Captain, Williams, Ariz.
HELMING, Oscar Clemens, 1st Lieut., La Jolla, Calif.
HERBERT, William Chapman, 1st Lieut., Spartanburg, S. C.
HOWARD, William Templeton, 1st Lieut., Covington, Tenn.
ICE, William Henry, Captain, Los Angeles.
JOHNSON, Maurice Eugene, Captain, Pleasant, W. Va.

JOHNSON, Neill, 1st Lieut., Stockton, Calif.
JONES, Harry Douglas, 1st Lieut., Nashville, Tenn.
KAUFMAN, Maurice, Captain, Cumberland, Ky.
KESCHNER, Harold Walton, 1st Lieut., New York.
LANGSDORF, Gordon C., 1st Lieut., San Leandro, Calif.
LEVIN, Grant, 1st Lieut., New York.
LEWISON, Edward Frederick, 1st Lieut., Baltimore.
LITTLE, William Wilbur, 1st Lieut., Washington Island, Wis.
LOKEN, Selmer Milo, 1st Lieut., St. Paul.
LYON, Edward, Jr., 1st Lieut., Williamsport, Pa.
MAGILL, Herbert Kelvin, 1st Lieut., Baltimore.
McCANDLESS, Garrett Clair, Captain, Franklin, Pa.
McCAULEY, Lewis Ross, 1st Lieut., Punxsutawney, Pa.
MOXNESS, Bennie Arthur, Lieut. Col., West Hartford, Conn.
PAULL, Ross, Major, La Jolla, Calif.
RAMO, Leon, Captain, Spivak, Colo.
RICKLES, George Abraham, 1st Lieut., Fort Steilacoom, Wash.
SHEA, Andrew W., 1st Lieut., Minneapolis.
SHEA, John D., 1st Lieut., Denver.
SIMS, John A., 1st Lieut., Colorado Springs, Colo.
SMITH, Frederick James Cunningham, 1st Lieut., Ardmore, Okla.
SNYDER, John Mendenhall, Captain, Rochester, Minn.
STERN, Siegfried, 1st Lieut., New Rochelle, N. Y.
WARREN, John Curtis, 1st Lieut., Bicknell, Ind.
WOODRUFF, Robert, 1st Lieut., Rochester, Minn.

FIRST CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty with the regular army by the Commanding General, First Corps Area, since January 24. The First Corps Area comprises the states of Maine, Vermont, New Hampshire, Rhode Island, Massachusetts and Connecticut.

BEEAKER, Vincent H., Lieut., Lewiston, Me., Fort Benning, Ga.
BROWN, Abe A., Major, Providence, R. I., Fort Benning, Ga.
CALCAGNI, Oscar H., Lieut., Morrisville, Vt., Fort Benning, Ga.
CANTER, Bernard, Lieut., Springfield, Mass., Fort Benning, Ga.
CARROLL, Francis B., Lieut., Great Barrington, Mass., Fort Benning, Ga.
COEN, William B., Lieut., Springfield, Mass., Army Medical Center, Washington, D. C.
CRANE, James E., Lieut., Stamford, Conn., Fort Benning, Ga.
CRISCUOLO, Joseph A., Lieut., New Haven, Conn., Fort Benning, Ga.
FENNO, Frederic R., Lieut., Brookline, Mass., Camp Edwards, Falmouth, Mass.
FULLER, Richard C., Lieut., Saxtons River, Vt., Fort Benning, Ga.

SECOND CORPS AREA

The following additional medical reserve corps officers had been ordered to active duty by the Commanding General, Second Corps Area, up to January 31. The Second Corps Area comprises the states of New York, New Jersey and Delaware.

BAGNER, Alan B., 1st Lieut., Jackson Heights, N. Y., Camp Livingston, La.
BEDELL, Harold, 1st Lieut., Long Island, N. Y., Fort Dix, N. J.
BELLANTONI, Adolph J., 1st Lieut., New York, Fort Hamilton, N. Y.
BERGAMINI, Herbert M., Major, New York, Carlisle Barracks, Pa.
BERGER, Morton, 1st Lieut., Howard Beach, N. Y., Fort Dix, N. J.
BERNSTEIN, Isidor, 1st Lieut., Brooklyn, Camp Livingston, La.
BOLKER, Abraham, 1st Lieut., Brooklyn, Camp Shelby, Miss.
BOTWIN, Nathan, 1st Lieut., New York, Fort McClellan, Ala.
BRIGNOLA, Gerald C., 1st Lieut., Hoboken, N. J., Fort Jay, N. Y.
CALABRESE, Edward St. J., 1st Lieut., Florida, N. Y., Camp Livingston, La.
CANTOR, Philip J., 1st Lieut., Brooklyn, Camp Shelby, Miss.
CHAIKINSKI, William A., 1st Lieut., Maspeth, N. Y., Camp Shelby, Miss.
COLONNA, Anthony R., 1st Lieut., Brooklyn, Fort McClellan, Ala.
DAUS, Milton J., Captain, Watkins Glenn, N. Y., Fort Ontario, N. Y.
DIASIO, Joseph S., Major, New York, Fort Hancock, N. J.
DICK, Morris M., 1st Lieut., New York, Fort Dix, N. J.
EISENBERG, David S., Captain, Port Byron, N. Y., Fort Benning, Ga.
ELSTEIN, Leo Herman, 1st Lieut., New York, Camp Shelby, Miss.
FALLER, Harry R., 1st Lieut., Port Jarvis, N. Y., Camp Livingston, La.
FOWLER, John D., Lieut. Col., Rochester, N. Y., Carlisle Barracks, Pa.

GOGGIO, Alfredo F., Lieut., Boston, Hq. F. A. C. Army Base, Boston.
GOLDMAN, Harry, Lieut., North Adams, Mass., Fort Benning, Ga.
HADLER, Arthur J., Lieut., Boston, Fort Benning, Ga.
KAVANAH, James S., Lieut., Methuen, Mass., Fort Devens, Mass.
LENTINO, Joseph W., Lieut., Clinton, Mass., Fort Benning, Ga.
LEVY, Phillip E., Lieut., Milford, Mass., Fort Benning, Ga.
LUCKNER, Wendelin G., Lieut., Stafford Springs, Conn., Fort Benning, Ga.
METCALF, John Thorpe, Captain, Lubeck, Maine, Fort Devens, Mass.
NEWTON, Aaron W., Lieut., Greenfield, Mass., Fort Benning, Ga.
PRIGOT, Aaron, Lieut., Roxbury, Mass., Fort Benning, Ga.
RATTENNI, Arthur, Lieut., Providence, R. I., Army Medical Center, Washington, D. C.
WHELAN, Edmund L., Lieut., East Boston, Mass., Fort Benning, Ga.
ZENTGRAF, Leo Paul, Lieut., Belmont, Mass., Fort Devens, Mass.

Orders Revoked

The order of the following medical reserve officer has been revoked:

WITTIG, Joseph E., Lieut., West Warwick, R. I.

FRANKEL, Israel A., 1st Lieut., Bronx, N. Y., Camp Livingston, La.
GARRETT, John L., 1st Lieut., Brooklyn, Camp Livingston, La.
GERSH, Irving, 1st Lieut., New York, Fort Dix, N. J.
GOLDBLOOM, Abraham A., Major, New York, Carlisle Barracks, Pa.
GRECO, Gabriel F., 1st Lieut., Richmond Hill, N. Y., Camp Livingston, La.
GREENBERG, Samuel, 1st Lieut., Brooklyn, Fort Dix, N. J.
HAUER, Emanuel, 1st Lieut., New York, Camp Livingston, La.
HINSON, Edward G., 1st Lieut., Oneida, N. Y., Fort Ontario, N. Y.
JACOBS, Matthew H., 1st Lieut., Brooklyn, Camp Livingston, La.
KAILANER, Jack R., 1st Lieut., Mount Vernon, N. Y., Camp Livingston, La.
KARPENSKI, Stephen J., Captain, Auburn, N. Y., Fort Benning, Ga.
KEMPNER, Ivan, 1st Lieut., Brooklyn, Camp Edwards, Mass.
KLEIN, Lawrence A., Captain, Rochester, N. Y., Fort Ontario, N. Y.
KLEIN, Sam I., 1st Lieut., Brooklyn, N. Y., Camp Livingston, La.
KOGEL, Marcus D., Major, Jamaica, L. I., N. Y., Carlisle Barracks, Pa.
KRAUS, Daniel M., 1st Lieut., New York, Camp Livingston, La.
LEFF, William A., 1st Lieut., Newark, N. J., Fort Benning, Ga.
LEIGH, Ted F., 1st Lieut., New York, Fort McClellan, Ala.
LILLEN, Milton, 1st Lieut., Newark, N. J., Fort Benning, Ga.
LIPKOFF, Clarence J., 1st Lieut., New York, Camp Livingston, La.
MASSUCCO, Frank J., 1st Lieut., Port Chester, N. Y., Fort Dix, N. J.
MAZAR, Steven A., Captain, Binghamton, N. Y., Fort Benning, Ga.
MILLER, Leo R., 1st Lieut., New York, Fort Devens, Mass.
NEUSTADTER, Arnold, 1st Lieut., Flushing, L. I., N. Y., Camp Livingston, La.
PACKARD, E. N., Lieut. Col., Saranac Lake, N. Y., Fort Dix, N. J.
PIAZZA, Thomas L., Captain, Albany, N. Y., West Point, N. Y.

PROTZMAN, Thomas B., Major, Englewood, N. J., Fort Monmouth, N. J.
 REIF, Irving L., 1st Lieut., Brooklyn, Fort Dix, N. J.
 SACHS, Elihu M., 1st Lieut., New York, Camp Livingston, La.
 SEIDEMANN, Irving, 1st Lieut., New York, Fort Dix, N. J.
 SETTEL, Edward, 1st Lieut., Brooklyn, Fort Dix, N. J.
 SHAPIRO, Sydney H., 1st Lieut., New York, Camp Livingston, La.
 SHLESINGER, Julius H., 1st Lieut., College Point, N. Y., Fort Dix, N. J.
 SOLOMON, Stanley E., Captain, New York, Fort Dix, N. J.
 SPERRAZZA, Augustine J., 1st Lieut., Astoria, L. I., N. Y., Fort Dix, N. J.

SPITZER, Lawrence L., 1st Lieut., New York, Camp Livingston, La.
 STEYAERT, Charles L., Captain, Lyons, N. Y., Fort Ontario, N. Y.
 STROBINO, Erastus E., Captain, Rochester, N. Y., Fort Ontario, N. Y.
 TAUBER, Max, 1st Lieut., Lynbrook, N. Y., Plattsburg Barracks, N. Y.
 TEPPER, Julius, 1st Lieut., Sunnyside, N. Y., Fort Dix, N. J.
 TONTAR, Silvio, 1st Lieut., Port Chester, N. Y., Fort Dix, N. J.
 TORNAMBE, Paul R., 1st Lieut., New York, Fort Dix, N. J.
 TURETSKY, Samuel, 1st Lieut., Brooklyn, Fort Dix, N. J.
 TYLAR, Norman E., Captain, Windsor, N. Y., West Point, N. Y.
 WEISS, Frank, 1st Lieut., Yonkers, N. Y., Fort Dix, N. J.
 WEISS, Murray Arthur, Major, New York, Fort Monmouth, N. J.
 WERTER, Nathan, 1st Lieut., Brooklyn, Fort Dix, N. J.

SEVENTH CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Seventh Corps Area. The Seventh Corps Area comprises the states of North Dakota, South Dakota, Minnesota, Nebraska, Iowa, Kansas, Missouri, Arkansas, and Wyoming.

BARGER, John Alexander, 1st Lieut., St. Louis, Camp Joseph T. Robinson, Ark.
 BRILLHART, Everett Guy, 1st Lieut., Shelby, Neb., Camp Joseph T. Robinson, Ark.
 BURLINGAME, David Albert, 1st Lieut., Minneapolis, William Beaumont Gen. Hosp., El Paso, Texas.
 DOSS, William Norman, 1st Lieut., Leon, Iowa, Camp Murray, Wash.
 HABERER, Justin Jerome, 1st Lieut., St. Louis, Fort Ord, Presidio of Monterey, Calif.
 HARMAN, Leo Dow, Major, Pawnee City, Nebr., Hot Springs, Ark.
 HAWKINSON, Raymond Paul, Captain, Robbinsdale, Minn., Fort Des Moines, Iowa.
 HENDERSON, Richard Gray, 1st Lieut., St. Louis, El Paso, Texas.
 HENDERSON, Robert Wesley, Captain, Bismarck, N. D., Camp Joseph T. Robinson, Ark.
 HOLMES, Charles King, Lieut. Col., Minneapolis, Hot Springs, Ark.
 JEWELL, Iverson Howard, Major, Paris, Ark., Hot Springs, Ark.
 KEIM, John Harry, 1st Lieut., Kennett, Mo., Fort Francis E. Warren, Wyo.
 MCCOMAS, Marmaduke D., Captain, Courtland, Kan., Fort Leavenworth, Kan.
 MULDOON, John Kennedy, Major, Omaha, Fort Ord, Calif.
 POTASHNICK, Robert, 1st Lieut., St. Louis, Camp Grant, Ill.
 RENICK, Fred Taylor, Captain, Lawrence, Kan., Fort Sam Houston, Texas.
 ROBERTS, John Richard, 1st Lieut., Brentwood, Mo., El Paso, Texas.
 ROSENFELD, Abraham Benjamin, Captain, Hibbing, Minn., Hot Springs, Ark.
 SARTORIUS, Herman Carl, Captain, Garden City, Kan., Fort Sam Houston, Texas.
 SATHER, Russell Olay, Captain, Crookston, Minn., El Paso, Texas.
 SELMAN, Ralph Jackson, Lieut. Col., Ottumwa, Iowa, El Paso, Texas.
 SHEINKOPF, Jacob Allan, Captain, Minneapolis, Hot Springs, Ark.

SMITH, Herman Joseph, 1st Lieut., Des Moines, Iowa, Fort Ord, Presidio of Monterey, Calif.
 SMITH, Louis Joseph, 1st Lieut., New Madrid, Mo., El Paso, Texas.
 SHELTON, Harold Jordan, Captain, St. Louis, Hot Springs, Ark.
 WEIR, Don Clair, 1st Lieut., Griswold, Iowa, El Paso, Texas.

Orders Revoked

ADLER, Morton William, 1st Lieut., Vandalia, Mo., Fort Snelling, Minn.
 ATKINSON, George Stanford, 1st Lieut., White Earth, Minn., Fort Snelling, Minn.
 BETTLER, Philip Leon, 1st Lieut., Sioux City, Iowa, Rolla, Mo.
 BORGMAYER, Henry John, 1st Lieut., Dodge, Neb., Fort Leonard Wood, Mo.
 BRANCH, James W., 1st Lieut., Hope, Ark., Camp Grant, Ill.
 BRYAN, Emery Clarence, 1st Lieut., Eric, Kan., Jefferson Barracks, Mo.
 CONLIN, Leo V. James, 1st Lieut., St. Paul, Carlisle Barracks, Pa.
 GRAY, Herschel Frederick, 1st Lieut., Little Rock, Ark., Fort Snelling, Minn.
 HAINES, Diedrich Jansen, 1st Lieut., Des Moines, Iowa, Camp Grant, Ill.
 HUDGEL, Lawrence Eugene, 1st Lieut., North Platte, Neb., Carlisle Barracks, Pa.
 JOHNSON, Marvin A., 1st Lieut., Plainview, Neb., Fort Snelling, Minn.
 LOTMAN, Harry Alfred, 1st Lieut., Lincoln, Neb., Carlisle Barracks, Pa.
 MACLEOD, Sherburne, 1st Lieut., Wichita, Kan., Fort Snelling, Minn.
 MARTIN, Melvin Cecil, Captain, Newton, Kan., Carlisle Barracks, Pa.
 MILLER, Richard White, 1st Lieut., Fayetteville, Ark., Jefferson Barracks, Mo.
 NEDERHISER, Morgan Ira, 1st Lieut., Cascade, Iowa, Carlisle Barracks, Pa.
 SHERMAN, Kenneth Eugene, 1st Lieut., Sturgis, S. D., Carlisle Barracks, Pa.
 SIMONTON, Kinsey MacLeod, 1st Lieut., Rochester, Minn., Camp Grant, Ill.
 SMITH, Frederick Abbott, 1st Lieut., Rochester, Minn., Camp Grant, Ill.
 STERNHILL, Isaac, Captain, Council Bluffs, Iowa, Camp Grant, Ill.
 STILL, Richard Mathias, 1st Lieut., Lincoln, Neb., Camp Grant, Ill.
 STRATHERN, Carleton S., 1st Lieut., St. Peter, Minn., Camp Grant, Ill.
 UIHLEIN, Alfred, 1st Lieut., Rochester, Minn., Camp Grant, Ill.
 VAUGHN, Louis Dysart, 1st Lieut., Rochester, Minn., Camp Grant, Ill.

EIGHTH CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Eighth Corps Area. The Eighth Corps Area comprises the states of Colorado, Arizona, New Mexico, Oklahoma and Texas.

ADAMS, Clinton E., Captain, Abilene, Texas, Fort Bliss, Texas.
 ALEXANDER, Arthur B., 1st Lieut., Spur, Texas, Fort Sill, Okla.
 APPEL, Myron Henry, 1st Lieut., Alice, Texas, Fort Sam Houston, Texas.
 BADT, Morris B., Lieut. Col., Fort Worth, Texas, Camp Hulen, Texas.
 BAILEY, William H., Lieut. Col., Oklahoma City, Fort Sill, Okla.
 BOYD, Granberry Davis, Jr., Captain, San Antonio, Texas, Fort Sam Houston, Texas.
 BOYKIN, James M., 1st Lieut., Taft Texas, Station Hospital, Fort Sam Houston, Texas.
 BOYSEN, Arthur E., Captain, McAllen, Texas, Fort Sam Houston, Texas.
 CLAUNCH, Dewitt, 1st Lieut., Comanche, Texas, Fort Sill, Okla.
 COHEN, Matthew, 1st Lieut., Phoenix, Ariz., Fort Sill, Okla.
 DAYWITT, Alvin L., Captain, Denver, Fort Sill, Okla.
 EWING, Ferdinand Stanley, Captain, Sinton, Texas, Fort Sam Houston, Texas.
 FRIEDLAND, Joseph D., 1st Lieut., Denver, Fort Sill, Okla.
 FRAWLEY, John Thomas, 1st Lieut., McAllen, Texas, Fort Sill, Okla.
 GERODETTI, Orlando F., Captain, San Antonio, Texas, 45th Division, Fort Sill, Okla.
 GOEN, Rayburne W., 1st Lieut., Denver, 45th Division, Fort Sill, Okla.
 GREEN, LaThaggar, Jr., 1st Lieut., Muleshoe, Texas, Fort Sill, Okla.
 HANNA, William Ray, 1st Lieut., Ladonia, Texas, Camp Hulen, Texas.
 HAYNES, Henry M., Jr., 1st Lieut., Gatesville, Texas, Fort Sill, Okla.
 HESTAND, Haskell E., 1st Lieut., Odessa, Texas, Fort Sill, Okla.
 HOLLS, Lynn E., 1st Lieut., Hollis, Okla., Fort Sam Houston, Texas.
 HOOKER, Lyle, 1st Lieut., Houston, Texas, Camp Hulen, Texas.
 JONES, William Ansel, Captain, Whiteriver, Ariz., Fort Sam Houston, Texas.
 JORNS, Cecil F., 1st Lieut., Houston, Texas, Fort Sam Houston, Texas.
 KENNEDY, Virgil N., Captain, Newkirk, Okla., Fort Sill, Okla.

KING, Everett G., 1st Lieut., Duncan, Okla., Fort Sill, Okla.
 KIRKPATRICK, Louis P., 1st Lieut., Houston, Texas, 45th Division, Fort Sill, Okla.
 MATTHEWS, Choice B., 1st Lieut., Kerrville, Texas, Fort Sam Houston, Texas.
 MCCARTY, David Wilson, Jr., 1st Lieut., Longmont, Colo., Fort Sam Houston, Texas.
 McMILLAN, George Sherill, 1st Lieut., Hurley, N. Mex., Fort Sill, Okla.
 MOORE, Masters H., 1st Lieut., Tyler, Texas, Fort Sill, Okla.
 NEWMAN, Meshach H., 1st Lieut., Shattuck, Okla., Fort Sill, Okla.
 OWERS, Albert, 1st Lieut., Temple, Texas, Fort Sam Houston, Texas.
 PAGE, Donald F., 1st Lieut., Boulder, Colo., Fort Bliss, Texas.
 PRYOR, Victor W., 1st Lieut., Holdenville, Okla., Fort Sill, Okla.
 RAFF, Joseph Samuel, Captain, Madill, Okla., Fort Sill, Okla.
 RHEA, Robert L., Jr., 1st Lieut., San Antonio, Texas, Fort Sam Houston, Texas.
 RICKS, James Ralph, Jr., 1st Lieut., Oklahoma City, Fort Sill, Okla.
 RIKE, Bernard J., 1st Lieut., Wagoner, Okla., 45th Division, Fort Sill, Okla.
 RIKLIN, Henry Hyman, 1st Lieut., Safford, Ariz., Fort Sam Houston, Texas.
 RITCH, Allen T., Major, San Antonio, Texas, Fort Sam Houston, Texas.
 ROBERTSON, Adolph H., 1st Lieut., Miles, Texas, 45th Division, Fort Sill, Okla.
 ROBINETT, James Bradley, Jr., 1st Lieut., Houston, Texas, Fort Sill, Okla.
 ROSS, Lloyd I., 1st Lieut., San Antonio, Texas, Fort Sam Houston, Texas.
 SCHILLER, Nelson Lorenz, Captain, Brenham, Texas, Fort Bliss, Texas.
 SHOTS, Chester C., 1st Lieut., Pleasanton, Texas, Fort Sam Houston, Texas.
 SHUPE, Reed Dalton, Captain, Phoenix, Ariz., Fort Bliss, Texas.
 SIEVERS, Walter Andrew, 1st Lieut., Gonzales, Texas, Camp Grant, Ill.
 SMITH, Leslie B., 1st Lieut., Phoenix, Ariz., Fort Sam Houston, Texas.
 WEINER, Harry Ida, 1st Lieut., Cave Creek, Ariz., Fort Bliss, Texas.
 WOODALL, John B., 1st Lieut., Kerrville, Texas, Camp Hulen, Texas.
 WOODARD, Thad L., 1st Lieut., Dallas, Texas, Fort Brown, Texas.
 WOODS, Haddon Benjamin, Captain, Refugio, Texas, Fort Sill, Okla.
 WOODSON, Orville McClure, 1st Lieut., Poteau, Okla., Fort Sill, Okla.
 WORD, Lee B., 1st Lieut., Bartlesville, Okla., Fort Sill, Okla.

Orders Revoked

Orders on the following officers, reported previously, have been revoked:

BADEN, Ervin Edgar, 1st Lieut., Raymondville, Texas.
BAMBERGER, Paul J., 1st Lieut., Climax, Colo.
BARNES, Johnson Peyton, 1st Lieut., Houston, Texas.
BICKLEY, Estill T., 1st Lieut., Corpus Christi, Texas.
BROWN, Robert N., 1st Lieut., Denver.
BUCHTEL, Henry A., 1st Lieut., Denver.
CARSON, John M., 1st Lieut., Shawnee, Okla.
CONTE, Raphael, 1st Lieut., Houston, Texas.
DAVIS, Charles O., Major, Houston, Texas.
DEVORE, Neal N., Captain, Houston, Texas.
EWERT, William A., 1st Lieut., Kingsville, Texas.
FRENCH, A. James, 1st Lieut., Ann Arbor, Mich.
GALLAHER, Frank C., 1st Lieut., Shawnee, Okla.
GLASIER, Wm. Albert, 1st Lieut., Carlsbad, N. M.
GOEN, Rayburne W., 1st Lieut., Denver.
JAFFA, Bertram B., Captain, Denver.

The following additional medical reserve corps officers had been ordered to extended active duty by the Commanding General, Ninth Corps Area, up to January 26. The Ninth Corps Area comprises the states of Washington, Montana, Oregon, Nevada, Utah, California and Idaho.

ALDEN, Warren H., 1st Lieut., John Day, Ore., Fort Lewis, Wash.
ALDRICH, Albert T., 1st Lieut., Los Angeles, Camp San Luis Obispo, Calif.
BARAFF, Albert A., Captain, Hollywood, Calif., Nacimiento, Calif.
BENNETT, Louis C., Captain, Los Angeles, Nacimiento, Calif.
BISWELL, Roger, 1st Lieut., Baker, Ore., Fort Lewis, Wash.
BURNS, Edgar M., 1st Lieut., Portland, Ore., Fort Lewis, Wash.
BURNS, John K., 1st Lieut., Spokane, Wash., 3d Division, Fort Lewis, Wash.
CAMPISI, Dominic A., 1st Lieut., San Jose, Calif., Camp San Luis Obispo, Calif.
CANIPAROLI, Sante D., Captain, Portland, Ore., 3d Division, Fort Lewis, Wash.
COMROE, Leon B., 1st Lieut., San Francisco, Camp San Luis Obispo, Calif.
COUGHLIN, William F., Captain, Carmel, Calif., Fort Ord, Calif.
DITTO, Hugh H., 1st Lieut., Los Angeles, Nacimiento, Calif.
DENNEN, Charles, 1st Lieut., Seattle, 29th Engineer Battalion, Portland, Ore.
DOROSHOW, George D., Captain, Huntington Park, Calif., Nacimiento, Calif.
ESPERSEN, Ruben W., Captain, Klamath Falls, Ore., Fort Lewis, Wash.
FISH, Lester W., Major, Los Angeles, Nacimiento, Calif.
GOLDENBERG, Julius L., 1st Lieut., Los Angeles, Camp San Luis Obispo, Calif.
GOURSON, Nathaniel E., 1st Lieut., Maywood, Calif., Camp San Luis Obispo, Calif.
GUNDERSON, Ernest O., 1st Lieut., Berkeley, Calif., Fort Lewis, Wash.
GUTHRIE, Myron S., 1st Lieut., Bakersfield, Calif., Camp San Luis Obispo, Calif.
HAFT, Stanley S., 1st Lieut., Los Angeles, Nacimiento, Calif.
HALLER, Austin P., 1st Lieut., Los Angeles, Nacimiento, Calif.
HANSEN, Alex F., 1st Lieut., Long Beach, Calif., Camp San Luis Obispo, Calif.

JONES, Edmund D., Captain, Beaumont, Texas.
JOHNSTON, Lawrence W., 1st Lieut., Terrell, Texas.
KIRKPATRICK, Louis P., 1st Lieut., Houston, Texas.
LoBELLO, Leon, 1st Lieut., Dallas, Texas.
McMILLAN, James M., 1st Lieut., Vinita, Okla.
MITCHELL, Holland C., Captain, San Antonio, Texas.
NICHOLSON, R., Jr., Major, San Antonio, Texas.
ROUTON, Benj. C., 1st Lieut., Oklahoma City.
STURM, Charles E., Captain, San Antonio, Texas.
WALKER, Glen H., 1st Lieut., Coolidge, Ariz.
WILLIS, Raymond S., Captain, Dallas, Texas.

CORRECTION

Lieutenant Jeter.—In THE JOURNAL, January 18, page 239, under Eighth Corps Area, in the list of medical reserve officers ordered to active duty, the name Peter, James R., 1st Lieut., Ennis, Texas, Fort Bliss, Texas, should have been Jeter, James R.

NINTH CORPS AREA

HARBAUGH, Oril S., Captain, San Diego, Calif., Fort Roscerans, Calif.
HAVENHILL, Asher D., 1st Lieut., Santa Cruz, Calif., Fort Ord, Calif.
HIGGINS, John W., 1st Lieut., Los Angeles, Camp San Luis Obispo, Calif.
HOLLANDER, Frederick G., 1st Lieut., San Diego, Calif., Fort Roscerans, Calif.
HOZUVICKA, Otto A., 1st Lieut., San Diego, Calif., Nacimiento, Calif.
HULL, Earl T., Jr., 1st Lieut., Los Angeles, Riverside, Calif.
JOHNSON, Richard P., 1st Lieut., Oakland, Calif., Fort Winfield Scott, Calif.
LAYDEN, Milton, 1st Lieut., Los Angeles, Camp Haan, Riverside, Calif.
LEWIS, Herbert D., 1st Lieut., Hood River, Ore., Fort Lewis, Wash.
McCREARY, James H., 1st Lieut., Los Angeles, Nacimiento, Calif.
MAKOWER, Melvin L., 1st Lieut., Berkeley, Calif., Presidio of San Francisco.
MATSON, James R., 1st Lieut., San Diego, Calif., Torrey Pines, Calif.
MICHENER, John M., 1st Lieut., Pomona, Calif., Camp Haan, Riverside, Calif.
MILLS, Victor D., 1st Lieut., The Dalles, Ore., Fort Lewis, Wash.
NICOLA, Quintus, 1st Lieut., Montebello, Calif., Nacimiento, Calif.
PECKHAM, George M., Captain, Oakland, Calif., Presidio of San Francisco.
RASKIND, Robert, 1st Lieut., Los Angeles, Camp Haan, Riverside, Calif.
RUBERSTEIN, Victor G., 1st Lieut., Los Angeles, Camp Haan, Riverside, Calif.
SCHMIDT, Philipp E., Captain, Glendale, Calif., Fort Ord, Calif.
SCHNEIDER, Leo, Captain, Portland, Ore., Fort Lewis, Wash.
SHELTON, Robert M., 1st Lieut., Inglewood, Calif., Nacimiento, Calif.
SKOLLER, Julius, 1st Lieut., Los Angeles, Riverside, Calif.
SMITH, William P., Major, Columbus, Mont., Camp Murray, Wash.
STEINBERG, Saul S., 1st Lieut., Oakland, Calif., Nacimiento, Calif.
TAIT, Arnold C., 1st Lieut., Rosalind, Wash., 3d Division, Fort Lewis, Wash.
TURLEY, Gerald W., 1st Lieut., Goldendale, Wash., Fort Lewis, Wash.
WEINBERG, Samuel J., 1st Lieut., Los Angeles, Nacimiento, Calif.

Relieved from Active Duty or Orders Revoked

DANIELE, Joseph A., 1st Lieut., assigned to Buckho Ranch, Calif., reported on January 18, orders revoked.
YUSKIS, Anton S., 1st Lieut., assigned to 7th Division, Fort Ord, Calif., reported on Dec. 26, 1940, relieved from active duty January 17.

HEALTH REPORT ON UNITED STATES TROOPS

The *Monthly Health Review* for troops in the United States, issued by the Surgeon General's Office, Washington, D. C., for the four weeks ended Oct. 26, 1940, shows that the general admission rate for these troops was 740 per thousand as compared to 566 for the previous month, communicable diseases having been largely responsible for the increase. The rate for the respiratory group of diseases rose to 212.2 from 114.1 for September. Venereal diseases showed a slight decline to 39.1 from 44 for the previous month, being still well above the rate for the same period in the previous year. Two cases of typhoid were reported during the month, one in the Seventh Corps Area and one in the Eighth Corps Area; there was one case of typhus fever in the Fourth Corps Area and one of Malta fever in the Ninth Corps Area. The rate for injuries showed an increase over that for September, 119 as compared to 87. The noneffective rate remained low, 21.7. The death rate was 2.61 per thousand. Of the seventy-nine deaths, four were due to adenocarcinoma, one to meningitis, three to tuberculosis, one to pneumonia, two to appendicitis, twenty-three to automobile accidents, twelve to airplane accidents, three to motorcycle accidents, six to suicide, three to homicide and two to drowning.

NEW HOSPITAL AT SCOTT FIELD

A hospital and infirmary and one barracks will be constructed at Scott Field, Ill., at an estimated cost of \$450,000, newspapers report. The hospital will have a capacity of two hundred and ninety-five beds and be of the cantonment type, intended to relieve crowding in the present facilities.

SHIPLOAD OF WAR RELIEF SUPPLIES FOR GREECE

Loaded with foodstuffs and other relief supplies purchased through the Congressional appropriation for relief of civilians in war torn nations, and the remainder purchased from Red Cross funds, the Greek steamer *Kassandra Louloudis* has just sailed for Greece with a cargo weighing nearly 9,000 tons, values in excess of \$1,000,000. In the cargo are \$150,000 worth of hospital and surgical supplies, 1,000,000 quinine tablets, 1,500,000 surgical dressings, 20,000 pounds of woolen yarn, 20,000 pairs of children's shoes, 80,000 suits of underwear, 100,000 blankets, 260,000 garments made by Red Cross volunteer workers, 10,000,000 pounds of foodstuffs and ten small trucks to be used for the distribution of these supplies in Greece under the direction of American Red Cross representatives.

ORGANIZATION SECTION

AMERICAN MEDICAL ASSOCIATION ON TRIAL

THE TRIAL OF THE CASE OF THE UNITED STATES OF AMERICA
VS.

THE AMERICAN MEDICAL ASSOCIATION, A CORPORATION, THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, A CORPORATION, THE HARRIS COUNTY MEDICAL SOCIETY, AN ASSOCIATION, THE WASHINGTON ACADEMY OF SURGEONS, AN ASSOCIATION, ARTHUR CARLISLE CHRISTIE, COURSEN BAXTER CONKLIN, JAMES BAYARD GREGG CUSTIS, WILLIAM DICK CUTTER, MORRIS FISHBEIN, THOMAS ALLEN GROOVER (DECEASED), ROBERT ARTHUR HOOE, ROSCO GENUNG LELAND, THOMAS ERNEST MATTINGLY, LEON ALPHONSE MARTEL, FRANCIS XAVIER MCGOVERN, THOMAS EDWIN NEILL, EDWARD HIRAM REEDE, WILLIAM MERCER SPRIGG, WILLIAM JOSEPH STANTON, JOHN OGLE WARFIELD JR., OLIN WEST, PRENTISS WILSON, WILLIAM CREIGHTON WOODWARD, WALLACE MASON YATER, JOSEPH ROGERS YOUNG.

This case came on for trial before Associate Justice James M. Proctor and a jury in Criminal Division No. 2 of the District Court of the United States in the District of Columbia at 10 o'clock a. m., Wednesday, February 5.

On behalf of the United States appeared

John H. Lewin, Special Assistant to the Attorney General.
Grant W. Kelleher, Special Assistant to the Attorney General.

George B. Haddock, Special Attorney, Department of Justice.

Edward J. Hickey Jr., Special Attorney, Department of Justice.

Walton Allen, Special Attorney, Department of Justice.

Compton Timberlake, Special Attorney, Department of Justice.

On behalf of defendants Medical Society of the District of Columbia, Washington Academy of Surgeons, Arthur Carlisle Christie, Coursen Baxter Conklin, James Bayard Gregg Custis, William Dick Cutter, Robert Arthur Hooe, Thomas Ernest Mattingly, Leon Alphonse Martel, Francis Xavier McGovern, Thomas Edwin Neill, Edward Hiram Reede, William Mercer Sprigg, William Joseph Stanton, John Ogle Warfield Jr., Wallace Mason Yater and Joseph Rogers Young:

Charles S. Baker.

William E. Leahy.

Warren Magee.

On behalf of defendants American Medical Association, Harris County Medical Society, Morris Fishbein, Rosco Genung Leland, Olin West and William Creighton Woodward:

Edwin M. Burke,

Seth W. Richardson,

Adrien Busick.

On behalf of defendant Prentiss Willson:

John B. Laskey.

The Proceedings

THE COURT:—Gentlemen, I assume you are ready to proceed.

Mr. Burke:—Except, your Honor, before you begin selecting a jury, we would like to present the document that I spoke to you about day before yesterday, for your consideration.

Mr. Magee:—They are the proposed motions, your Honor, with reference to parts of the record.

THE COURT:—I think we could take them up better after the jury is selected. I am anxious, gentlemen, to select a jury so that we may release jurors who are not needed. We have three panels here today. The other courts may need them.

THE COURT:—I want to address a moment the ladies and gentlemen who appear as prospective jurors. There are some seventy-eight of you, three panels; and I wish you all to carefully follow the information which will be given you by way of identification of this case and the parties connected therewith, so that it will not have to be repeated. In the first place, I wish to briefly identify the case as to the parties and as to the names of the defendants; so I will have to ask each individual, as your name is called, to stand and turn toward your right so that the ladies and gentlemen of the jury may see you for a moment. This is a prosecution entitled United States against the American Medical Association, a Corporation Incorporated

under the Laws of Illinois and having its office and principal place of business in Chicago; the Medical Society of the District of Columbia, a corporation having its office and principal place of business in the District of Columbia; Harris County Medical Society, an unincorporated association having its office and principal place of business in Houston, Harris County, Texas; Washington Academy of Surgeons, an unincorporated association having its office and principal place of business in the District of Columbia. And then the following named individual defendants, all of whom I understand to be physicians, either of this city or of some other city.

The court called the name of each defendant, who stood as called except as otherwise noted.

THE COURT:—Where is Dr. Conklin? Has he been here?

Mr. Baker:—I heard from him day before yesterday. It seemed then that he had a desperately ill infant on his hands, and that is probably the difficulty.

THE COURT:—He will probably be here. Do you expect him here?

Mr. Baker:—Oh, absolutely.

THE COURT:—Will you call my attention to him as soon as he arrives?

Mr. Baker:—Yes, sir.

THE COURT:—The indictment against these defendants is for violation of the so-called Sherman Anti-Trust law. Charges against the associations and the individual defendants, in substance, are that, beginning in January, 1937, or shortly thereafter, and continuing to the date of the indictment, which was Dec. 20, 1938, the defendants and Washington hospitals and other persons to the grand jurors unknown combined and conspired together for the purpose of restraining trade in the District of Columbia in the following way: for the purpose of restraining Group Health Association, Inc., in its business of arranging for the provision of medical care and hospitalization to its members and their dependents on a risk-sharing prepayment basis;

For the purpose of restraining the members of Group Health Association, Inc., in obtaining, by cooperative efforts, adequate medical care for themselves and their dependents from doctors engaged in group medical practice on a risk-sharing prepayment basis;

For the purpose of restraining the doctors serving on the medical staff of said Group Health Association, Inc., in the pursuit of their callings;

For the purpose of restraining doctors (not on the medical staff of Group Health Association, Inc.) practicing in the District of Columbia, including the doctors so practicing who are made defendants herein, in the pursuit of their callings;

For the purpose of restraining the Washington hospitals in the business of operating such hospitals.

Counsel representing the United States, will you arise and state your names for the benefit of the jury?

The various lawyers arose and stated their names.

THE COURT:—Now, ladies and gentlemen of the first panel, that is, of this criminal court, I wish you would follow these questions very carefully, and if your answers cannot properly

be manifested by silence, I wish you would indicate by raising your hands and rising so that you may answer. Before doing so, I wish to have you sworn.

The members of the panels were duly sworn by the Assistant Clerk. The Court then directed questions to the panel.

Do you know any of the defendants whose names have been called?

(Two prospective jurors stood.)

THE COURT:—Will you give your name, please?

Mr. Simmons:—My name is Lloyd J. Simmons.

THE COURT:—Who is it that you know?

Mr. Simmons:—I don't know him personally, but it is Dr. Martel.

THE COURT:—You say you do not know him personally.

What is the nature of your acquaintanceship?

Mr. Simmons:—He recently saved the life of my nephew's wife.

THE COURT:—Would that fact in any wise influence you in the consideration and determination of the case if chosen as a juror?

Mr. Simmons:—I think it would.

THE COURT:—You think you would have difficulty in determining the case fairly and impartially, solely upon the basis of the evidence?

Mr. Simmons:—Yes, sir.

Mr. Porter stated that he was acquainted with Dr. Yater in high school days.

THE COURT:—Do you still have contact with him in a social way?

Mr. Porter:—No, sir.

THE COURT:—Would that fact in any wise influence you in the consideration and determination of the case if you are drawn as a juror?

Mr. Porter:—No, sir; I don't think so.

THE COURT:—Is any juror acquainted with counsel or any member of the staff representing the Government on the one hand or the defendants on the other?

Mr. Reuben Acton stated that he used to know Mr. Magee, in childhood days, 15 or 20 years ago, but has not had any social or business contacts with him in recent years, and that fact would not in any wise influence him in consideration or determination of the case, if drawn as a juror.

Mr. Edward R. Hammer said that he knew Mr. Leahy socially, but that would not in any wise influence him in consideration or determination of the case, if drawn as a juror.

THE COURT:—Have you formed or expressed any opinion as to the guilt or innocence of the defendants?

Mr. Kenneth S. Barry said he had formed an opinion and that he could not lay it aside and base a verdict impartially upon the evidence.

Mr. Philip P. Keller also definitely formed one and would be embarrassed if drawn as a juror, or would have difficulty in laying aside that opinion.

THE COURT:—Are you related to any person who is a defendant in this case? Do you know of any relationship between you and any of the individual defendants whose names have been mentioned?

Are you related to anyone engaged in the practice of medicine, including doctors, nurses, and hospital officials?

Mr. Hammer stated he had a niece who made her home with his family, employed in Georgetown Hospital.

Mr. Herman Dodeck had a cousin, a doctor, whom he saw three or four times a year, and that it might influence him in consideration and determination of the case, if drawn as a juror.

Mr. Simmons also had a niece who is a nurse and thought it might influence him.

Mr. Joseph E. Taylor Sr., has a cousin who is a doctor and thought it might influence consideration and determination of the case. He sees him once a year, about Christmas time.

THE COURT:—Have any of the defendant doctors ever treated you or any one in your immediate family, that is, these doctors whose names have been called?

Mr. Simmons:—Dr. Christie treated our family.

Mr. McNeil:—Dr. Neill performed an operation on my wife.

THE COURT:—How long ago was that?

Mr. McNeil:—Ten years, I guess.

THE COURT:—Would that fact in any wise influence you in your consideration and determination of the case, if drawn as a juror?

Mr. McNeil:—No, sir.

THE COURT:—Are you, or is any member of your immediate family an employee of any doctor, nurse, or hospital?

THE COURT:—Are you related to any of the counsel in the case, that is, any of the attorneys whose names have been mentioned? (No response.)

Have any relations which you have had with persons engaged in the practice of medicine prejudiced you so that you could not impartially try the merits of this case? In other words, have you had any incident arise in your relations with any doctor which might operate to create a prejudice or bias in your mind? (No response.)

Have you any conscientious scruples against convicting doctors of violation of the anti-trust law? (No response.)

Are you acquainted with Mr. Thurman Arnold, who, as you know, is Assistant Attorney General in charge of trust prosecutions? (No response.)

Is any juror a member of Group Health Association or has he or she ever been a member of Group Health Association?

Miss Patterson:—My name is Miss M. Edith Patterson. I am a member of Group Hospitalization.

Mr. Timberlake:—That is a different organization, your Honor.

Mr. Barry:—I am also a member of Group Hospitalization.

Mr. Bieber:—I am a member of Group Hospitalization.

Mr. Irwin:—I am a member of Group Hospitalization.

Mr. Hammer:—I have group hospitalization. I don't know what group it is.

Mr. Simmons:—I belong to an organization.

THE COURT:—What is your organization?

Mr. Simmons:—Group Hospitalization.

Mr. Dodeck:—I have a policy in an association.

THE COURT:—Is it a regular life insurance policy?

Mr. Dodeck:—It is health and life insurance.

Mr. Mogruder:—I belong to Group Hospitalization.

THE COURT:—Is there any member of any family, an immediate relative, such as father, mother, brother, sister, son or daughter, who is or has been a member of Group Health Association? Confine yourselves at present to that particular name—Group Health Association. (No response.)

Is there any member of the panel who is or has been employed since Jan. 1, 1937, in any of the executive branches of the Government of the United States?

Mr. Simmons:—Reconstruction Finance Corporation.

Mr. Horad:—My name is Washington Horad. I am employed by the Post Office Department.

Miss Patterson:—National Guard Bureau, War Department.

Mr. Gage:—My name is Lawrence A. Gage. Veterans Administration.

Mr. Porter:—War Department.

THE COURT:—Has any member of the panel a near relative, such as husband, wife, father, mother, son or daughter, who is or has been since Jan. 1, 1937, employed in any branch of the Government?

Mr. Barry:—Yes, sir. My father is in the War Department.

Mr. Horad:—I have a brother employed in the Commerce Department, in the Census Bureau.

Mr. Dodeck:—I have a sister in the Federal Power Commission.

Mr. O'Neil:—My husband is in the Navy.

Mr. Marggraf:—My name is Charles A. Marggraf. My sister is in the Treasury Department, and I have a brother and sister in the Public Schools of the District of Columbia.

THE COURT:—This relates to branches of the Federal Government. That would be local. Your sister is in which department?

Mr. Marggraf:—The Treasury.

Mr. Focchino:—I have a sister-in-law in the Reconstruction Finance Corporation.

Mr. Hammer:—I have a sister in the Veterans Bureau.

Mr. Barry:—My wife worked in the Civil Service Commission and the Treasury Department.

Mr. Taylor:—I have a mother in the Treasury Department. My step-father is in the Guard Service.

THE COURT:—Where is your step-father?

Mr. Taylor:—The Guard Service at Arlington.

Mr. Walsh:—My sister is in the Federal Bureau of Investigation.

Mr. McDowell:—I have a sister-in-law in the Agriculture Department.

Mr. Simmons:—I have a brother in the Federal Housing.

THE COURT:—What do you say, gentlemen, if we excuse Mr. Simmons?

We will excuse you from answering any further questions. You need not leave for the moment. I will excuse several others in a few moments.

Mr. Mogruder:—My wife is in the Library of Congress.

Mr. Ayers:—I have a brother in the War Department.

Mr. Bieber:—My mother is in the Bureau of Engraving & Printing, and my wife is in the Farm Credit Administration. I also have an uncle in the Navy Yard—the United States Navy Yard, Washington.

Mr. Corens:—My daughter is in the Veterans Bureau. I have a daughter-in-law working in the Navy Yard.

A Prospective Juror:—Do you want to know about sisters-in-law and brothers-in-law?

THE COURT:—I do not think it goes quite that far. The question mentions husband, wife, father, mother, son, or daughter. The next question is: Are you a member of any of the so-called union groups among the Federal employees, such as the American Federation of Government Employees, the United Federal Workers of America, the Federal Personnel Association, the Customs Association, the United Government Workers, Incorporated, and the National Federation of Government Employees? Are you a member of any of those organizations?

Miss Patterson:—Yes.

THE COURT:—Of which one, please?

Miss Patterson:—The American Federation.

THE COURT:—Does any of you have any immediate relatives, such as husband, wife, father, mother, son, or daughter who is or has been since Jan. 1, 1937, a member of any such group?

THE COURT:—Have you or has any member of your immediate family ever been sued by a physician, or have you sued a physician? In other words, have you ever had any litigation with a physician, one way or the other?

(There was no response.)

THE COURT:—Does any one of you attend or subscribe to the teachings of the Christian Science Church?

(There was no response.)

THE COURT:—Does any one of you or does any one of your immediate relatives, as far as you know, subscribe to the principles of or attend as a member any medical group other than that to which the defendants belong, such as the osteopathic school, the chiropractic school, or the naturopathic school, or any of the so-called schools which offer a plan or a system of medical treatment differing from that of the physicians?

(There was no response.)

THE COURT:—Has any member of the panel ever had any occurrence to him which has aroused in him any antagonistic feelings toward a doctor, a physician, or any group of doctors or physicians? In other words, have you ever had any experience of an unpleasant nature that has left any ill feelings or antagonistic feelings toward a doctor or medical group of any kind?

(There was no response.)

THE COURT:—Have you any other knowledge of this case than that which you have learned in Court, as has just been outlined to you, such as from reading of it in the newspapers.

Mr. Keller:—Just from reading about it in the papers the last few days.

THE COURT:—You have already told us that you have a very fixed opinion?

Mr. Keller:—That is right.

THE COURT:—Then, I shall not pursue this matter any further with you.

Mr. Hammer:—I have so many doctors, nurses, and dentists visiting in my home, and we have talked this case over quite a bit, so I have formed an opinion on it.

THE COURT:—You have already answered it.

Mr. McNeil:—I read about it in the papers only Friday.

THE COURT:—You have not had any previous knowledge of it? You have just read of it in the newspapers?

Mr. McNeil:—Yes.

Mr. Barry:—I have read considerable about it and have discussed it with my friends.

THE COURT:—Is any one of you a patient of any doctor employed by Group Health Association, Incorporated?

Mr. Kelleher, of counsel for the Government, will read the names of those doctors who are associated with Group Health Association, for your information.

Mr. Kelleher:—Dr. Raymond E. Selders; Dr. Richard H. Price; Dr. Mario V. Scandiffo; Dr. Russell F. Cahoon; Dr. Clark P. Halstead; Dr. Charles J. Albright; Dr. Dorn S. Hower; Dr. Robert Crichton; Dr. Gerald Long; Dr. Virginus Dabney; Dr. R. A. Boe; Dr. Allan Lee; Dr. R. Stephen Hulburt; Dr. Charles P. Campbell; Dr. David Dantzig; Dr. Arthur Rosenbaum; Dr. Henry S. Murphy; Dr. K. Charles Latven; Dr. M. H. Levine; Dr. Henry Rolf Brown; Dr. Chase; Dr. Lewis Marshall; Dr. Hutton; Dr. Moretti; Dr. Bradley.

For the last few we do not have their first names or initials.

THE COURT:—You have heard the reading of that list. Are you or have you been a patient of any of the doctors whose names have been called?

(There was no response.)

THE COURT:—Do you know of any close relatives or friends who have been patients of any of those doctors?

Mr. Shelton:—I think he read the name Scandiffo there.

Mr. Kelleher:—That is correct.

Mr. Shelton:—About five years ago he attended my child one time.

THE COURT:—Does that fact in any wise influence you in your consideration or determination of the case as here outlined?

Mr. Shelton:—Not at all.

THE COURT:—How do you spell that doctor's name?

Mr. Lewin:—S-c-a-n-d-i-f-f-i-o.

Mr. Gage:—I have a close friend who was treated by Dr. Murphy in the Group Health.

THE COURT:—Dr. Murphy? Did you call his name?

Mr. Kelleher:—Yes, your Honor; Henry S. Murphy.

THE COURT:—Would that fact in any wise influence you in your consideration or determination of the case, Mr. Gage?

Mr. Gage:—No, your Honor, it would not.

THE COURT:—Have you or has any member of your family been a member of any association or corporation which furnished or arranged for the furnishing of medical service?

Mr. Barry:—I have mentioned mine before.

THE COURT:—Has any juror formed any opinion, or does any one of you now entertain any opinion, with respect to the merits of any group, association, or corporation formed for the purpose of rendering or arranging for the provision of medical service to persons on a prepayment basis?

Mr. Barry:—I mentioned that before.

THE COURT:—Are you or is any member of your family or is any close relative employed by, or have you or they ever been employed by, an organization known as the Twentieth Century Fund?

(There was no response.)

THE COURT:—Or the Good Will Fund—another organization known as the Good Will Fund?

(There was no response.)

THE COURT:—Or by the Edward A. Filene Good Will Fund?

(There was no response.)

THE COURT:—Or by an organization known as the Health Economics Association?

(There was no response.)

THE COURT:—Or by any Federal credit union?

(There was no response.)

THE COURT:—Have you formed any opinion as to the right of any hospital to select physicians for appointment to the regular staff or to the courtesy staff?

(There was no response.)

THE COURT:—Have you formed any opinion as to the right of Washington hospitals to prescribe rules and regulations concerning the care and treatment of patients admitted to hospitals?

(There was no response.)

THE COURT:—Have you formed any opinion as to the right of doctors to form associations and to adopt rules and regulations governing their professional relations with their patients and among themselves?

(There was no response.)

WITNESSES TO BE CALLED BY THE GOVERNMENT

THE COURT:—Now, members of the panel, among the witnesses whom the Government expects to call are the following. I wish you would follow their names, so that you may state whether or not you are acquainted with any of them:

Mrs. Elsie P. Sadler	Dr. R. Stephen Hulburt
Mrs. Mildred H. Cargill	Dr. Allan Lee
Caroline Christopher	Dr. Lee Thompson
Dorothy Cridland	Dr. Francis X. Richardson
Dorothy Ernsting	Dr. Mario Scandiffo
Catherine Hartenbourg	Dr. George B. Trible
Mrs. C. E. Johnson	James R. Adams
William C. Kirkpatrick	Miss Peggy O'Connor
Dr. Hugh Cabot	Mary Frances Stuart Maury
Dr. Michael Davis	Colonel Joseph Randall
Dr. Bowman C. Crowell	Anita Richardson
Raymond R. Zimmerman	Mrs. Caroline Reece Epperley
Miss Roseannette Barrent	Dr. V. J. Dardinski
William F. Penniman	William White Anderson, Jr.
Margaret Wilson	Mrs. Harriet A. Austin
Dr. Holman Taylor	Mrs. Edwina Austin Avery
Dr. J. C. Alexander	Mr. Hastings B. Avery
Dr. Walter A. Coole	Charles C. Hardin, Jr.
Dr. A. T. Talley	Mrs. Charles G. Hardin
Mrs. Ira C. Everett	Sherwood K. Booth
Dr. Alan Newmann	Miss Sara Abbott

After conference of attorneys with the Court concerning the jury the counsel returned to their seats.

The Assistant Clerk:—Jurors, as your names are called, please answer and take seats in the jury box.

(The prospective jurors took seats in the jury box, as follows):

Reuben Acton Jr.	Lawrence A. Gage
Edwin H. Ayers	Washington W. Horad
Edgar W. Bieber	Egbert H. Irwin
Albert E. Burley	Otho T. M. King
Hubert P. Corens	Eugene B. Magruder
Columbus Facchina	Charles A. Marggraf

THE COURT:—Now, gentlemen, the Government has the first challenge. If you have any challenge for cause, you will make the challenge on that basis, if it is for some individual juror; if not, make a peremptory challenge.

Mr. Lewin:—The Government has no challenges for cause.

THE COURT:—Do you care to exercise a peremptory challenge, or are you content with the jury?

Mr. Lewin:—We should like to exercise one peremptory challenge.

THE COURT:—Very well. Name the juror, please.

Mr. Lewin:—Mr. Albert E. Burley.

THE COURT:—Mr. Burley, you will step down, please.

(*Mr. Burley was excused.*)

The Assistant Clerk:—Mrs. Madelyn M. McDowell.

Mrs. McDowell:—Here.

The Assistant Clerk:—Please take seat No. 4.

(*Mrs. McDowell took seat No. 4.*)

THE COURT:—Now the defense may exercise a challenge, either for cause or peremptorily. If it is for cause, state that fact.

Mr. Leahy:—May I ask the indulgence of the Court for a moment? Might Mr. Lewin and I approach the bench?

THE COURT:—Yes.

(*Counsel for both sides approached the bench and conferred with the Court.*)

(*After a long conference on the question of lawyers and government employees on juries, the trial continued.*)

Mr. Leahy:—The defense will now exercise one of its peremptory challenges. We will excuse Mr. Corens.

The Clerk:—Ernest S. McNeil, please take the seat No. 5. (*Thereupon Ernest S. McNeil took seat No. 5 in the jury box.*)

THE COURT:—Now the Government challenge.

Mr. Lewin:—The Government exercised a peremptory challenge and asks that Mr. McNeil be excused.

THE COURT:—Mr. McNeil, you are excused.

The Clerk:—Mrs. Edna Hayes O'Neil, please take seat No. 5. (*Thereupon Mrs. Edna Hayes O'Neil took seat No. 5 in the jury box.*)

THE COURT:—Now, it is a defense challenge.

Mr. Leahy:—The defense will now exercise its peremptory challenge and excuse Edgar W. Bieber.

(*Thereupon Edgar W. Bieber, being excused, vacated the jury box.*)

The Clerk:—Miss M. Edith Patterson, please take seat No. 3. (*Thereupon Miss M. Edith Patterson took seat No. 3 in the jury box.*)

THE COURT:—It is the Government's turn.

Mr. Lewin:—The Government passes this time.

THE COURT:—That means you are content?

Mr. Lewin:—We are content, yes, your Honor.

Mr. Leahy:—May we approach the bench for just a moment, your Honor?

THE COURT:—You may.

(*Counsel for both sides approached the bench and conferred with the Court.*)

Mr. Leahy:—Now would your Honor ask Miss Patterson whether she had ever been employed in the office of any physician?

THE COURT:—Miss Patterson, will you stand, please?

Have you ever worked for any medical association or any physician, or anything of the sort?

Miss Patterson:—No.

(*At the conclusion of the foregoing conference, counsel returned to the trial table, and the trial proceeded as follows:*)

Mr. Leahy:—If the Court please, the defense will now excuse Miss Patterson.

(*Thereupon Miss M. Edith Patterson, being excused, vacated the jury box.*)

The Clerk:—Jesse Ellis Porter, please take seat No. 3.

(*Thereupon Jesse Ellis Porter took seat No. 3 in the jury box.*)

Mr. Lewin:—May I approach the bench your Honor?

(*Counsel for both sides approached the bench and conferred with the Court.*)

THE COURT:—Mr. Porter, will you stand, please? You stated that you knew Dr. Yater. I believe you told us what the nature of that acquaintanceship was, did you not?

Mr. Porter:—During our high school days we were together.

THE COURT:—And you have not had any social or business contact with him since, as I recall?

Mr. Porter:—No.

THE COURT:—That has been how long ago?

Mr. Porter:—Twenty years.

THE COURT:—I believe you stated that would, in no event, enter into your consideration, if you were chosen as a juror?

Mr. Porter:—That is correct, your Honor.

(*At the conclusion of the foregoing conference, counsel returned to the trial table and the trial proceeded as follows:*)

Mr. Lewin:—The Government is content with this jury.

Mr. Leahy:—Might we approach the bench for just a moment, if your honor pleases?

(*Counsel for both sides approached the bench and conferred with the Court.*)

THE COURT:—Mr. Gage will be excused and report to Judge Morris's court.

(*Thereupon counsel returned to the trial table and the trial proceeded as follows:*)

The Clerk:—Henry E. Preston, please take seat No. 7.

(*Thereupon Henry E. Preston took seat No. 7 in the jury box.*)

THE COURT:—Now it is the Government's challenge.

Mr. Lewin:—The Government asks that Mr. Preston be excused on a peremptory challenge.

THE COURT:—Very well. Mr. Preston will be excused.

(*Thereupon Henry E. Preston, being excused, vacated the jury box.*)

The Clerk:—Watson V. Shelton, please take seat No. 7.

(*Thereupon Watson V. Shelton took seat No. 7 in the jury box.*)

THE COURT:—It is the defendant's turn.

Mr. Leahy:—May we approach the bench?

(*Counsel for both sides approached the bench and conferred with the Court.*)

THE COURT:—Mr. Shelton will be excused; report to Judge Morris's court.

(*Thereupon Watson V. Shelton, being excused, vacated the jury box.*)

The Clerk:—Joseph F. Taylor Sr. please take seat No. 7.

(*Thereupon Joseph F. Taylor Sr. took seat No. 7 in the jury box.*)

THE COURT:—The Government might express its views now.

Mr. Lewin:—The Government is satisfied with this jury.

Mr. Leahy:—If the Court please, the defense accepts the jury.

THE COURT:—Very well: Swear the jury.

(*The jury, constituted as follows: Reuben Acton Jr., 33, salesman; Edwin H. Ayers, 46, gas dealer; Jesse Ellis Porter, 45, assistant engineer; Mrs. Madelyn M. McDowell, 44; Mrs. Edna Hayes O'Neil, 51, housewife; Columbus Facchina, 28, secretary-treasurer of the Charles Facchina Tile Company; Joseph F. Taylor Sr., 38, floor manager; Washington W. Horad, 45, mail carrier; Egbert H. Irwin, 39, salesman; Otho T. M. King, 31, salesman; Eugene B. Magruder, 41, foreman; Charles A. Marggraf, 32, salesman, was duly sworn to try the issues in the case.*)

THE COURT:—Now, gentlemen, as you know, we are going to select alternate jurors under the statute.

(*The two alternates selected were Lloyd F. Hadeway, 26, assistant theater manager, and Frank E. McCrink, 41, electrician.*)

(*Thereupon, at 12:55 o'clock p. m., a recess was taken until 1:40 o'clock p. m. of the same day.*)

AFTER RECESS

THE COURT:—We are going to examine twenty more which I think ought to be enough to get to the alternates.

The Court addressed the same questions to a new group of prospective jurors.

Mr. Henry Weiss stated he had formed an opinion.

Mr. Hessick had formed an opinion.

Mrs. Etta Richwine had formed an opinion.

Mr. William J. Howard had formed an opinion.

Mrs. Martha Signor Bier had formed an opinion.

Mr. Lee D. Thren said he had pretty strong convictions but hasn't formed an opinion as to the guilt.

Mr. Thomas C. Hammett said Dr. Mattingly attended his brother's family.

Mr. Roland W. Beall knew Dr. Rogers Young and lived in the same small town with Dr. Rogers Young about 20 years ago.

Mr. Thomas G. Aycock knew Dr. Francis X. McGovern professionally. He operated on his son and attended him for about three months, about eight or nine years ago.

Mr. Hammett said Dr. Charles M. Hammett is a first cousin. Also Dr. W. M. Colton, former Dean of Georgetown Dental College, is his uncle, and also a friend of Mr. Leahy's.

Mr. Aycock has a sister-in-law in Public Health Service. THE COURT:—Have you ever had any relations with a doctor or anyone engaged in the practice of the medical profession which has in any wise prejudiced you against such a person or against the medical profession, so that you feel that you could not act impartially on the merits of the case?

Mr. P. Craig Jones:—Yes.

THE COURT:—Is any one of you employed by any executive branch of the Government of the United States? And I will add to that, is there anyone who was so employed since January 1, 1937, but who may now be disconnected? Either way, please stand.

(Four members stand.)

THE COURT:—The name, please.

Mr. Ralph F. Raymond:—Ralph F. Raymond.

THE COURT:—What branch or department?

Mr. Raymond:—I work for the Department of Agriculture.

THE COURT:—Agriculture. What is your position?

Mr. Raymond:—I am a photographer.

Mr. James R. Wannan:—Department of the Interior.

THE COURT:—What is the nature of your work?

Mr. Wannan:—Clerk.

Mr. Jesse C. Miller:—Jesse C. Miller.

THE COURT:—You are employed?

Mr. Miller:—Post Office Department.

THE COURT:—What is the nature of your employment?

Mr. Miller:—In connection with specification work on supplies with the Postal Service.

THE COURT:—Are you, or any member of your family members of any association or corporation, or have you or have they ever been members of any association or corporation which furnished or arranged for the furnishing of medical service?

Mr. William H. Sudduth, Jr.:—I have a sister who belongs to the Group Hospital Association.

THE COURT:—And the other gentleman?

Mr. Beall:—I belong to the Group Hospital Association.

THE COURT:—There are other organizations which fall under that same question. The next is the Good Will Fund; next, Edward A. Filene Good Will Fund; Health Economics Association. Or, generally speaking, of any Federal Credit Union, are you members or your families or close friends members of any so-called Federal Credit Union?

Mr. Wannan:—Your Honor, I am a member of a Federal Credit Union.

(At the conclusion of a conference counsel resumed their places at the trial tables, and the trial proceeded.)

The Assistant Clerk:—Jurors, as your names are called, please answer and take your seats at the jury box.

James M. Walsh.

Thereupon—

JAMES M. WALSH,

being called, took a seat near the jury box.

THE COURT:—Mr. Walsh, as you will recall, was on the other panel. He was the last one.

The Assistant Clerk:—Lloyd F. Hadaway.

Thereupon—

LYOYD F. HADAWAY,

being called, took a seat near the jury box.

THE COURT:—Gentlemen, I suppose we had better proceed and I will permit the Government to speak first.

Mr. Lewin:—The Government is content with the alternates.

Mr. Leahy:—If the court pleases, the defense will excuse Mr. Walsh.

The Assistant Clerk:—Mr. Walsh is excused.

(James M. Walsh excused.)

Thereupon—

HARRY J. JEFFRIES,

being called, took a seat near the jury box.

Mr. Lewin:—The Government is content with the alternates, your Honor.

Mr. Leahy:—The defense will excuse Mr. Jeffries.

(Harry J. Jeffries excused.)

The Assistant Clerk:—Frank E. McCrink.

Thereupon—

FRANK E. MCCRINK,

being called, took a seat near the jury box.

Mr. Lewin:—The Government is still satisfied with the alternates, your honor.

Mr. Leahy:—The defense is satisfied with the alternates.

THE COURT:—You may swear the alternates.

(Frank E. McCrink and Lloyd F. Hadaway were duly sworn as alternate jurors.)

THE COURT ADDRESSES THE DEFENDANTS

THE COURT:—Are all the individual defendants here at the present time?

Mr. Leahy:—I think Dr. McGovern is still sick in bed.

THE COURT:—Now I am speaking directly to the individual defendants.

The matter of the presence of you gentlemen individually throughout the trial has been the subject of discussion between court and counsel. The court recognizes that as busy physicians, during the course of the trial you may feel it necessary to absent yourselves in order to attend on some patient, and in order that your determination of matters of that sort should not be interfered with, because you alone can judge of the necessity of your absence under such circumstances, the court has suggested that it is willing that you should absent yourself. Speak to you individually, whenever, in your judgment, your absence is deemed necessary for attendance upon some patient, but I wish to suggest that you should be here as much as circumstances will permit. But I shall put no restrictions upon you, assuming that you now, each, individually, are willing to have the case go on in your absence, looked after, of course, by your counsel.

I would like you to stand, please, if you approve of accepting that suggestion from the court.

(The defendants rose.)

Mr. Leahy:—I have this suggestion to make, if your Honor please, before counsel for the prosecution begins his opening. I am advised that there was deposited with the clerk this morning a motion. Could we approach the bench for just a moment with respect to that?

THE COURT:—Yes.

(Counsel for the respective parties approached the bench and conferred with the court.)

(Counsel resumed their places at the trial table and the trial proceeded as follows:)

THE COURT:—I may say to the alternate jurors that for the purpose of attendance upon the court and listening to the evidence and proceedings and instructions of the court, you are part of the jury, just as much so as any of the others. So that you must follow things just as the other jurors do. As we go along I will give you more specific instructions if they are necessary; but at the moment the immediate thing before us is the opening statement of counsel for the United States in which they will outline in more detail the charge in the indictment and the evidence which they expect to produce in support of it, and of course I enjoin upon all of the jurors to follow it carefully so that you will understand the case.

Mr. Lewin:—Has your Honor any objection to the presence of witnesses for the Government during the opening statement?

THE COURT:—I will leave that matter to counsel. If counsel on either side prefer that witnesses be excluded, they will be; otherwise they will be allowed to remain in court. That of course applies to the Government witnesses as well as the defense witnesses.

Mr. Lewin:—The Government has no objection to any witness being present.

THE COURT:—If you wish, you can wait until after the opening statement and we can determine that tomorrow morning.

Mr. Leahy:—We might as well ask for the rule now, because eventually the witnesses probably will be excluded.

THE COURT:—Very well. Let the witnesses be excluded.

The Assistant Clerk:—All witnesses in the case now on trial, both for the Government and for the defendants, please return to this court room tomorrow at 1:30.

Opening Statement on Behalf of the United States by John H. Lewin

Mr. Lewin:—May it please the court, Mr. Foreman, and ladies and gentlemen of the jury, my colleagues here at the front table and I are Special Assistants to the United States Attorney General, and in the Department of Justice, and we have been charged with the duty of presenting to you the Government's side of this case. The time has now come when it is appropriate to make what is known as an opening statement of the facts which the Government expects to prove, and of the nature of the evidence by which it expects to prove those facts.

In order to correctly present my presentation of the facts I propose in this opening statement to avoid speaking extemporaneously, and will adhere rather strictly to written notes. I will caution you that of course my opening statement is not evidence.

The Grand Jury in this District brought these charges, and they are embodied in an indictment consisting of over 30 printed pages. The indictment itself is nothing but an accusation; and we for the Government undertake here and now this burden, to present before you evidence, oral and written, which we believe will convince you beyond a reasonable doubt that the substantial allegations of the indictment are true.

The indictment charges that the defendants committed a misdemeanor by violating Section 3 of the Sherman Anti-Trust Act, that section of the Sherman law which applies to the District of Columbia, in that they first concertedly boycotted and restrained business of a medical cooperative known as Group Health Association, Inc.; that they concertedly restrained the business operations of twelve private Washington hospitals, and that they restrained a number of doctors, those connected with Group Health Association, and doctors who otherwise would have been connected with it or would have consulted them in the free and lawful pursuit of their own calling. It charges that these defendants entered into and participated in a conspiracy to do these things over a period of approximately two years, beginning in January 1937, running continuously through 1937 and 1938 down to the date of the indictment, which was Dec. 20, 1938.

The defendants who are so charged in the indictment and who are on trial are:

(Here he listed the defendants.)

(After naming West, Fishbein, Cutter, Leland and Woodward.)

These five defendants are doctors, but they are not generally practicing physicians. The evidence will show that they devoted their time and energies as business men largely to the policies of this organization, the A. M. A., and to the business side of medical practice.

The remaining individual defendants, fifteen in number, were all practicing physicians and surgeons here in the District of Columbia. The evidence will show that they were all members of the defendant, The Medical Society of the District of Columbia, which is a local subsidiary of the A. M. A., and that they were active in its affairs, and particularly active in its affairs during the period of the conspiracy, and in the activities of that society, which are charged in the indictment.

It will be shown by the evidence that all of these 24 defendants, the A. M. A., the District Medical Society, the two corporations, the two associations, Harris County Association and the Washington Academy of Surgeons, and the twenty individual defendants acted and conspired together during a period of approximately two years, as I have described, to effect and bring about the restraints charged, the three types of restraint that I have mentioned, and that each of those 24 defendants took active part in furthering the complete scheme.

The evidence will reveal also that they were assisted by certain other members of the District Medical Society whom the Grand Jury did not name as defendants. They will be known as and shown to be co-conspirators with these defendants here.

The evidence will also show that these defendants induced and coerced the twelve private Washington hospitals, which are not defendants here, to join with the defendants as conspirators to bring about certain of these restraints.

It may be important to outline at this time a little more fully what the evidence will show about the A. M. A., its character, and the power that it possessed as the result of its great size, its importance and its activities in the medical world to impose the restraints which are charged in this indictment.

I have stated that it is incorporated; that it has these constituent and component local societies throughout the United States; that it has a membership of 109,000 doctors out of 169,000—all the doctors in the United States; that it publishes a weekly journal to subscribers numbering 95,000 people; that it maintains bureaus, councils and committees which concern themselves to some extent with medical economics, or the business side of the rendition of medical care. It also promulgates a set of rules which it makes binding on all of its members, including the members here in the District of Columbia who are members of the District Medical Society, and which rules embody some purely economic restraints upon the practice of medicine.

Although they are so interpreted, as the evidence will show, and so applied, these rules are given this innocent title and are called, "Principles of Medical Ethics."

Observance of these rules is enforced upon all the members in the first instance by the various local medical societies, such

as the District Medical Society for its members, and the Harris County Medical Society, down in Texas, for its members.

The evidence will show that observance of these rules is largely achieved because members are unwilling to suffer loss of prestige and ostracism which would result if they should be expelled from these societies, or otherwise disciplined for violation of these restrictions that are imposed upon them.

And so the evidence will show that the A. M. A. and the other defendants possessed enormous power to boycott and thus restrain any medical cooperative or hospital or doctor whose business methods of rendering medical care differed from the business methods favored by the A. M. A. and thus offered business competition to the A. M. A. or its members.

At this point let me turn to a description of the so-called victims of this alleged conspiracy and the activities of these victims which the indictment charges the defendants restrained.

The first victim was, of course, Group Health Association, Inc., a medical cooperative.

The next victims were the doctors who claim the right to pursue their callings unhampered by the defendants and who chose to serve on the medical staff of Group Health Association.

The next victims were those doctors who would otherwise have joined the medical staff of Group Health Association, or at least would have freely consulted with it in difficult cases but who were forced by the defendants to refrain from doing so because they were members of the District Medical Society, held by its rules, and the A. M. A., and because these doctors were in fear of those two organizations.

The other victims were the twelve private independent, so called, Washington hospitals, engaged in the business of caring for patients who need hospitalization and who would have welcomed such patients even though they might be members of Group Health Association or hospitals who would have extended to the Group Health doctors the same courtesy and privileges at these hospitals in order that Group Health patients might be treated in these hospitals by doctors of their own free choice.

Group Health Association was and is, as I have said, a consumer cooperative. It was formed by a group of Federal employees for the worthy purpose of putting into effect here in the District of Columbia a reasonable plan whereby they and their families and their dependents could obtain adequate medical care, including hospitalization, for less money, and whereby the cost of service could be budgeted and paid not in one great big lump sum, which might be disastrous to them, but prepaid in the form of small monthly dues to the cooperative.

I believe that an accurate statement of the issues requires me to state now that Group Health Association was in no sense a governmental agency. It was an independent private corporation. Although it was organized by employees of the Government, it was not a branch of the Government; nor was it sponsored by the Government. It had its merits and, since nothing is perfect, it may have had its imperfections. Nevertheless, whatever shortcomings it had, it was entitled to the protection of the law; and it is not sponsored by the Government in this case, except that the Government considers itself under the same duty to prosecute any persons, whoever they may be, who commit unlawful restraints as the Government is when such restraints are imposed upon any other business activity.

The plan of the Group Health Association was a simple one. It was borrowed from similar plans in other parts of the United States which had worked reasonably and successfully. The Government employees who initiated the plan were those employed by the Home Owners Loan Corporation, the H. O. L. C. It was later extended to certain of the other executive departments and bureaus of the Government.

The plan was first explained to their own credit union, which they operate themselves, where they deposited their money and borrowed in the H. O. L. C., by their personnel director, Mr. Raymond R. Zimmerman, who will be called to testify in this case. It will appear that the officers of the credit union thought well of the plan, because they took notice of the large amounts of money which the employees were borrowing from that credit union in order to meet medical bills; and the officials of the H. O. L. C. to whom these employees naturally submitted their plan before they put it into operation, also indicated, as the evidence will show, that they thought well of it, and they decided to encourage it, because they believed that as a business proposition for the H. O. L. C. more and better medical service available to their employees, preventive service and physical examinations and that sort of thing, as well as curative, might increase the efficiency of their employees and might reduce the loss to the Corporation from sickness.

Through the fall of 1936 and the early part of 1937 these plans were discussed and studied, and in January, 1937, at a mass meeting of all these employees, the employees voted almost unanimously to attempt to put the plan into operation.

A large number indicated their willingness to become members, and a consumer cooperative to operate the plan was duly incorporated under the Federal law, a private corporation, and given the name Group Health Association, Inc., and it was incorporated on February 24, two days after Washington's Birthday, 1937. It was purely a non-profit organization.

It undertook to collect from its members monthly dues. First, the dues were \$2.20 for an individual member, and \$3.30 for a family membership. Later it became necessary to revise those dues upward slightly. The individual membership remained at \$2.20; it never was changed; but the family membership was raised to \$4, and there were some additional small charges for dependents.

Out of this money so collected the Group Health Association undertook not to make any profit, but to defray the expenses of operating a modern, up-to-date clinic, centrally located where its members could get the benefit of the plan, to pay the salaries of a medical staff of doctors and the cost of 21 days of hospitalization in a hospital, where hospitalization would be needed.

Thus, with a few minor exceptions, which I will not note now, Group Health Association undertook in this way, cooperatively, to give complete medical care and to encourage its members to have regular physical examinations and other preventive treatments without any extra charge.

It proposed to employ a medical director, a licensed physician, and to leave to him, to his better judgment, the selection of the rest of the medical staff, and to leave to this medical staff complete freedom in all matters pertaining to the treatment of patients, unhampered and free from all interference in such matters by the laymen in the organization who were elected members for the purpose of conducting, without compensation to themselves, the purely business affairs of the cooperative.

It was contemplated that after the clinic was procured and equipped and was under way the dues collected would make the plan self-sustaining financially, but it was also realized that there must be some initial lump sum expenditures to procure the clinic and to procure the modern, up-to-date equipment that was to go into that clinic. Otherwise the establishment of the clinic would have to be deferred until these small monthly dues could accumulate in sufficient quantities.

I have said that the evidence would show that the officials of the H. O. L. C. manifested interest in this plan. They had made a study from monthly reports furnished the H. O. L. C.'s officers which showed that the H. O. L. C. was under the expense of \$100,000 a year for sick leave alone simply for its employees here in Washington—\$100,000 a year.

It will appear that these officials of the H. O. L. C. had acquainted themselves with the medical plans which many private businesses and industrial concerns had encouraged in the interest of efficiency of their employees.

The H. O. L. C. was a corporation created by an Act of Congress in 1933 to engage in the commercial business of lending money for the financing of homes and farm mortgages on homes. It paid its own way out of money which it earned in that business.

The statute, Federal statute under which it was incorporated, authorized it to determine its own expenditures, its own necessary expenditures, and the manner in which they were to be allowed and paid, without the provision of any other law governing the expenditure of any other fund. Accordingly, and under the statute, and the powers granted to the corporation thereunder, the officials of the Home Owners' Loan entered into a contract with that association in March 1937, whereby, on the one hand the H. O. L. C. agreed to make available absolutely to Group Health Association the comparatively small sum of \$40,000 and whereby in return for that Group Health Association undertook in this contract to maintain this medical service for the employees of H. O. L. C. and, in addition, to conduct physical examinations for the said employees of the H. O. L. C. and in addition to that to supervise nursing services provided.

Now, after the Home Owners' Loan became obligated to advance this \$40,000, which it agreed to advance part in cash and part in medical and surgical equipment which Group Health Association needed,—and I may say here that under the law the Home Owners' Loan was permitted in making purchases to get this at somewhat reduced prices through the Procurement Division of the Treasury,—I say after this money, this \$40,000 was advanced, this clinic was put into operation on Nov. 1, 1937. In other words it was incorporated in February; the contract was made in March; and the clinic opened in November 1937.

In May 1937 the trustees of Group Health Insurance Association, after making a previous attempt so to do, which the evidence will show was blocked and hampered by these defendants in order to prevent the association from acquiring a staff, engaged Henry Rolf Brown, a physician just about to retire from the medical staff of the Veterans Administration, engaged him to be the first medical director, and during the summer of 1937 he and Dr. Raymond E. Selders, a surgeon whom Dr. Brown had engaged for general surgery, occupied themselves in acquiring the necessary equipment. Dr. Brown selected at first three more licensed physicians and they were elected, after appointment, to work under the guidance and direction of Dr. Brown.

The evidence will show that this whole plan was sound and reasonable; that its details were widely conceived, and that under the circumstances, bearing in mind the vigorous opposition it encountered from the defendant these plans were, on the whole, well carried out. The business of Group Health Association was not itself to engage in the practice of medicine but was on the other hand to make the business arrangement for the provision of medical care and hospitalization to its members and their dependents on what is called a risk sharing prepayment basis. The risk sharing plan has some insurance features present in it in that you pay a limited amount or fee for which there is received this medical care where and while others may not have occasion to need or require that care although paying a similar amount.

Group Health Association paid its employees and medical staff ample salaries. It provided, where it was permitted to do so, hospitalization for its members and their dependents. The evidence will demonstrate the type of work and services performed by the general practitioners and specialists for the association. They had this advantage: They obtained by joining the medical staff and engaging in group practice under the direction of this medical officer the opportunity of familiarizing themselves with each other's experience and skill, and by making common use of the equipment, such as x-rays, they were able to and did avoid much unnecessary expense. The evidence will further show that the personal relationship, so important in the premises and which must exist between doctors and their patients, did continue to exist between the members of the association and the doctors on the staff engaged in treating and prescribing for them. The evidence will show that the lay officers, trustees, confined themselves to the business problems of the Co-operative and did not engage in any interference with the doctors in their rendition of medical services to the members.

Yes, the evidence will show that the Group Health Association was a worth while and needed experiment in the field of economics; in providing more efficient medical care at less cost, and in the manner in which the bill was to be paid. In short, in providing an easier burden to the patient in getting the medical job done efficiently. It was, as the evidence will show, an experiment which richly deserved, not the opposition which it got, but cooperation and assistance from so-called organized medicine, including these defendants.

There will be evidence of the need for providing medicine under such a plan, that is, at lower cost and with an easier way of paying for it, and it will be shown that this need was felt primarily by those in the lower income group, people who must be provided for on incomes of three or four thousand dollars, or less. It will appear that such people did not want clarity but on the other hand were such that if called on to pay at any time without warning the substantial amount necessary for medical care and hospitalization it might constitute for them a family catastrophe.

There will be evidence that these people could get as members of this group medical services they could afford to pay for at a price they could afford to pay, and the means of budgeting such expenses. The evidence will show that Group Health Association was designed primarily to meet such economic problems of just such people of such income status. And the evidence will also show that even the defendants themselves had recognized this need. That although they fully recognized it, it was after Group Health Association had embarked upon the solution of the problem, and only then, that the fear of competition from Group Health forced the defendants to attempt some similar enterprise of their own.

It is a fact that the qualifications for membership in Group Health Association were not confined to people of the low income group. The testimony will be that it was not thought wise for them to make any class distinction on that or any other basis, but it will also appear as a fact that over 83 per cent of those who joined by Nov. 1, 1937, and who had thus become interested in this organization were people of that low income

group; and it is also a fact that if Group Health Association had been destroyed, as the defendants tried to destroy it, such people would have suffered the most.

And now before I come to tell you of the hostile, unfair and oppressive treatment to be disclosed by the evidence which the defendants gave and meted out to this cooperative for nearly two years, let me outline briefly the nature of the evidence of the reasonableness and cooperative attitude which, on the other hand, Group Health Association and its officers and officials displayed toward the defendants, and particularly the District Medical Society. From the outset the sponsors of Group Health Association sought help and not antagonism from the local medical society. For instance, in the prospectus which first outlined the plan, and which was followed by one more in detail, both of which came to the attention of the medical society, there appeared this statement:

"It will, of course, be desirable to obtain the fullest possible measure of cooperation from the members of the medical profession of the District of Columbia. After the plan is launched the Medical Society of the District of Columbia will be invited to appoint a representative to sit with the committee which undertakes to establish the plan. It will also be requested to assign a committee of several physicians to advise the medical director of the plan of all relevant matters. The intention will be to solicit the advice and cooperation of the local medical society and to work with it to the fullest degree possible."

We will show that that expression of good will and willingness to seek its cooperation came specifically to the attention of the District Medical Society. Furthermore, it will appear from the evidence that as early as June 24, 1937, some of the officers and trustees, and the medical director, Dr. Brown, with the utmost good will, voluntarily attended a meeting of the executive committee of the District Medical Society at their suggestion and explained to that committee in detail the Group Health Association project; and at that meeting the Medical Director said frankly to them, "We will be glad to have our staff make application for membership in your society and cooperate with your society in every way we can for the uplifting of medicine. If you can help us select personnel we will be glad to take those recommendations, consider them and adopt them where possible." There will be evidence also that on three occasions this little Group Association, trying to get started, sought the cooperation of the society; that they approached the Society through its president, Dr. Neill, on several occasions and even offered him the surgeons'hip of the Group Health Association. The evidence will show that although Group Health Association would have preferred the active cooperation of the medical group in making this project a success, Group Health would have been happy, if that had been impossible, simply for the District Medical Society to let it alone. We will show that on this point one of Group Health Association's trustees asked the District Medical Society this reasonable question: whether it would be agreeable to the Committee of the District Medical Society, and the other associations, to let this program get started—this program as equally serious with us as their own was with them—in rendering an ethical service to patients; if they could not properly defer any action or decision with reference to us until we have lived a little while, and they had an opportunity to judge us and what we had done, not from the standpoint of what the other group has done, but from the standpoint of how we operate here. We asked them to simply delay any expression of opinion for the time being, we being free all the time to consult them; they being free all the time to consult us, working together cooperatively, each recognizing the other's ability and honesty, working it out on a plan satisfactory to this group here. Such an enterprise as I have described, the proof will show here, Group Health Association was; no more, no less. But the Government's evidence will also establish that in order for Group Health Association to succeed, in order to arrange for the best possible service to its members, at least three things were important and absolutely necessary. First, it must be free and unhampered in seeking to obtain qualified doctors for its medical staff and in retaining that staff after they joined. The right to be free and unhampered, the chance to be that. That is first. In the second place these doctors on its medical staff, specialists and general medical men, if there were any serious and difficult cases that arose in any doctor's practice, they must be free and unhampered in seeking consultations from specialists. Not the right to thrust themselves on an individual consultant, but the right to be free and unhampered in seeking such consultation.

Last of all, Group Health Association must be free and unhampered in seeking to obtain from the private hospitals in Washington, hospital accommodations for its members and

access to those hospitals for its doctors, so that these doctors could operate on and treat the Group members when they were hospitalized. In acquiring and holding a medical staff, in obtaining consultations with outside specialists, and in obtaining access to private Washington hospitals, Group Health Association did not require or seek any preferential treatment, but merely equality with the others.

And our evidence will show that the defendants realized that if they could exert their power in combination to shut Group Health off from acquiring these very reasonable necessities they might succeed in suppressing the competition, and might succeed in destroying Group Health altogether. And there will be evidence of other restraint. But we are prepared to show that the principal means adopted by the defendants to carry out their conspiracy to crush and destroy this competitor were:

1. To prevent any of the 800 or more doctors of the District Medical Society in Washington from accepting employment from Group Health Association, even if they wanted to do so, or from even consulting with any other Group Health Association doctors whoever they may be.

2. To obstruct Group Health in its efforts to obtain doctors for its staff from members of the profession, who were not even members of the District Medical Society.

3. To attack doctors who joined Group Health Association staff in order to induce them to resign, quit and abandon Group Health Association or, failing that, to punish them and discredit them in their profession in the hospitals.

4. To induce all, every one of the local private hospitals which were supposed to be independent enterprises, to join in this boycott of Group Health Association by refusing to admit Group doctors to hospital privileges in their institutions.

And you will be asked to contrast these drastic measures of opposition which the doctors carried out against Group Health Association, and its doctors—it is almost unbelievable but the evidence will establish it—with the totally different attitude manifested by Group Health Association seeking from the defendants merely their cooperation and good will. I shall outline the Government's evidence as to each of these four means adopted by the defendants.

First, I said was the boycott of the staff, preventing them from getting a staff, taking a staff, preventing them from getting consultants in different cases. As to the first of these, the staff and consultation boycott, the evidence will show that on March 3, 1937, just two weeks after Group Health Association was organized, the defendant District Medical Association amended its constitution so as to forbid all its members from having anything whatsoever to do with any clinic or with any doctors who were, for any reason, denied the approval of the District Medical Society. While it is true that this amendment was directed ostensibly against another clinic, a workman's compensation clinic known as the Crawford Clinic, it is true nevertheless that this amendment adopted in March, 1937, for the first time, two weeks after Group Health Association was formed, was shortly afterward invoked against Group Health. The amendment provides: That no member of the Society—and there were at least 825 of them—shall engage in any professional capacity whatsoever with any organization, group or individual, by any name called or however organized, engaged in the practice of medicine in the District of Columbia or within ten miles thereof, which has not been approved by the Society.

The Executive Committee is authorized and directed to prepare an approved list of organizations, groups and individuals by whatever name called or however organized, engaged in the practice of medicine in the District of Columbia, or within 10 miles thereof, and the same shall be kept in the office of the Secretary-Treasurer.

Now, in the debate leading up to the adoption of that amendment some of the members of the District Medical Society argued against it. They are not defendants here. One of them warned the others that if they passed it it gave the District of Columbia Medical Society the power to impose boycott on perfectly legitimate, legal clinics, and expressed the view that it was not an altogether wise thing to do to attempt to boycott that which is legal, a legal business, in this fashion. Notwithstanding that warning, the amendment was adopted and, once having deprived all its 825 members of their freedom by the imposition of this rule, the defendant, the District Medical Society, was in a position to prevent over 800 doctors practicing in Washington from either joining Group Health Association if they wanted to, or from consulting with any of its doctors, by the simple expedient of simply failing to put Group Health Association on that list. In June and July, or in June or July, 1937, the Executive Committee of the District Medical Society held its first series of meetings for the avowed purpose of discussing ways and means of combating Group Health Association. This appears in their minutes. At a meeting on July

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12, it prepared and filed, pursuant to the amendment which I have just called to your attention, a list of all physicians and institutions furnishing medical care which it would approve. It was pointed out that the failure to put Group Health Association on this list would automatically forbid consultation by members of the association with members of the society. Accordingly, the defendants intentionally omitted from this private list the name of Group Health Association and any doctors whom it might have on its staff; thus the list became what is generally known as a "white list" and the effect was to blacklist all those who did not belong thereon.

The next step was to bring that home to all the members of the Society; those who attended the meeting and those who didn't, and on July 29, 1937, the defendant Dr. Conklin, the Secretary of District Medical Society, sent a letter to each of the members enclosing this white list and calling attention to the fact that the constitution of the District of Columbia forbade the members from having anything whatever to do with organizations and doctors not listed thereon. On the same day he sent another letter to all these doctors, directing their attention specifically to this provision of the constitution in his other letter, and specifically referred to an organization, referring to it as "an organization interested in gaining medical personnel." These letters constituted a direct threat that members of the District of Columbia Medical Society would be disciplined if they did accept employment with Group Health or consult with any of its doctors, and in August 1937, a man who until June 12, 1937, had been the chairman of the board of the Society wrote to the defendant, Dr. Hooe, telling members of the Society that they must be warned not to take position with Group Health.

The evidence will leave no doubt that this boycott was intentionally imposed. We shall offer the minutes of the various meetings held during the summer of 1937, and these minutes will reveal to you in great detail the plan which the defendants made for the imposition of this particular restraint. The local doctors here in Washington were assisted in this plot—they were large enough to do it themselves, but were assisted by the Chicago representatives of the powerful A. M. A.—I say they were assisted by the representatives of the A. M. A. who were specifically authorized to come down here to Washington to be on the ground, to participate and cooperate with the local defendants. The chairman of one of the subcommittees of the District Medical Society was advised by William Woodward, a full-time employee of the A. M. A., who is head of this Legal Medicine and Legislation Committee, "that the District Medical Society cannot go on with Group Health Association without violating what the A. M. A. considers principles of medical ethics."

Special committees were appointed to make recommendations for combating the Group Health Association, using that very word. One of the co-conspirators at an early meeting pointed out that one of the ways of attaining their objective was to discipline, and I am using his words, "Our own members." And he suggested that one of the weapons at hand—not reasonable persuasion but weapons at hand available was to forbid consultation with physicians doing this type of work. What type of work? The type of work I have described.

One of the committees, in a report to the executive committee, recommended four things that might be done to groups which were considered unethical. Another subcommittee, 1937, reported that Group Health Association is unethical, and the participation in it by any member of the Medical Society of the District of Columbia would render it amenable to disciplinary action by the Society.

There was the evidence that throughout the period of the conspiracy the defendants were vigilant in seeing that the members of the Society did not transgress. For example, in March 1938, two members of the group became seriously ill with heart trouble, and the group health doctor, who was attending them, felt the need, as any responsible physician would, of consultations with men who were heart specialists here in the City of Washington. He wanted to call such a specialist in consultation. This heart specialist was willing to consult, wanted to do so, but he was not permitted by the defendants to enter into the usual consultation at the bedside of the defendant. Oh, no, he was specifically instructed by Dr. Neill, the President of the Society, to examine these patients only in the absence of the Group Health Association doctor; not to enter into any consultation with any of the doctors employed by Group Health—and there will be documentary evidence of that. The evidence will show that another prominent Washington physician, also a member of the District Medical Society, but with some independence of mind, happened to be a personal friend of Dr. Brown, and because that doctor was observed having luncheon with Dr. Brown and conversing with him, and because that doctor accepted as his own private patient—he had a mask on—one of the members of Group Health Association and participated in a serious and dangerous operation of

such patient that doctor was proceeded against by this disciplinary committee of the District of Columbia. That committee, acting under the chairmanship of the defendant, Dr. Hooe, actually recommended that the doctor be subjected to discipline. Shortly after Group Health opened its clinic in November 1937, a young lady employed as a laboratory technician fell suddenly and dangerously ill of an acute internal hemorrhage requiring an immediate operation. Since no surgeon connected with Group Health had hospital privileges the doctor who diagnosed her case, and who had found her on the floor, rushed her to Garfield Hospital and employed a doctor, a member of the District Medical Society, to perform the operation. That doctor permitted the patient to remain a long time without attention, with her life in serious danger, while he haggled with the Group Health doctor as to whether he would be permitted by the Society to take the case, and agreed to perform the operation only after he was assured by the Group Health Association that he was entering the patient as his own private patient and not as a member of Group Health. After he got those assurances and not before, and all this time the patient in need of operative treatment, the operation was performed.

Mr. Leahy:—Without intending to interrupt you, are you referring to the Tew case?

Mr. Lewin:—No, I am not. I have no objection to giving the name. It is Mary Frances Stuart. I will mention the Tew case; I will get around to that.

Mr. Leahy:—I thought you would.

Mr. Lewin:—Moreover the evidence will show that the defendants were not content to deprive their own members of the right to treat members of the Association; their campaign was so venomous and so widespread that they succeeded in deterring other doctors from doing anything through fear of the defendants' displeasure and reprisals. At the outset Group Health Association sought to obtain as its first Medical Director a certain doctor who had just had a fine career in the Medical Corps of the United States Army. This gentleman approved heartily of the objectives of Group Health Association, and of its members. He approved the group practice and the advantages gotten from it, and he approved the prepayment scheme so people could get more for less money. He personally wished—he was free, willing, and twenty-one—he personally wished to accept the appointment but the opposition of the District Medical Society however was brought to bear upon him and he became convinced that he should not do it and went back to them after telling them that he would take the position, stating that disapproval by the District Medical Society would prevent Group Health Association from obtaining any available medical assistance. Thus, and this is important—for it will be borne out by the evidence, any adverse pressure which could or might be leveled at the medical staff of Group Health Association was directly attributable to the acts of the defendants themselves.

Now, let me take up the attack. This story gets worse and worse, the attacks which the defendant made upon Group Health doctors in order to induce them to resign from Group Health Association or, failing that, to punish them or discredit them in their profession with the hospital. On Nov. 1, 1937, Group Health Association announced a staff of five doctors. There was Dr. Brown, and four doctors he had just chosen to work with him. There was Dr. Selders, the surgeon, the doctor in charge of internal medicine, and—

THE COURT (interposing):—At any convenient time, Mr. Lewin, we will suspend and adjourn until tomorrow.

Mr. Lewin:—Well, I was just getting started on another point; this might be as good as any time to adjourn.

THE COURT:—Members of the jury, including the alternate juror. There are some observations which I want to make before we adjourn. It sometimes occurs in a protracted trial such as this undoubtedly will be, one which is likely to attract considerable public attention, that jurors who are selected to try that case are by order of court kept together and confined during the entire course of the trial. The purposes of that may be obvious to you. Among others, it is to relieve the jury itself of any embarrassment and unfettered and impartial attitude toward the case. Also, to relieve other parties and persons who in one way or another connected with the case might be embarrassed as a result of contact with such juror; also to avoid, as far as possible, any incidents arising which by their nature might be improper and thus break down all efforts that have been made by all the parties on both sides, all the expense to the Government and the parties, and all those contributions and participations in the trial to go for naught.

Now, I have the power to confine you in this case. It is one which should only be exercised by the Court when necessary, and depends entirely upon the circumstances, finally to be determined by the Court's discretion. I have decided not to confine you. I have great confidence that you will as jurors appreciate

the responsible duties which have been cast upon you, and that by your demeanor throughout this case you will remove any possibility, so far as it is within your power, of any incidents arising which could in any way embarrass you as jurors or prejudice the trial of this case. Some of you, I dare say, have been jurors before, and have a thorough understanding not only of the responsibilities of a juror, but I think also of the high honor and dignity of the office. I want to say to you very sincerely that in my own experience as a lawyer and as a Judge, much of it spent in courtrooms with juries, I regard the jury and each member thereof as occupying a position of honor, dignity and responsibility equal to that of the Judge himself. You are an integral part of this institution, set up by the sovereign power of the land to administer justice. You, in the trial of the case, are the supreme judges of the facts. You look to a Judge upon the bench to rule fairly and impartially. You expect him to keep his mind free of any sympathy, prejudice or influence which would in any wise affect the conscientious, fearless and fair determination of the matter upon which he is called upon to rule. A like responsibility rests upon you, and I want you to appreciate, and I want you every moment throughout the trial of this case to understand that these questions which were put to you and which you have answered resulted in your selection as jurors because on your solemn oaths you declared yourself in mind and heart thoroughly impartial and unfettered to undertake the trial of this case without any preconceived notion that would embarrass you or prejudice you in any wise. That means as you sit there now on the threshold of this case that you have assumed the same attitude of impartiality as you expect from a Judge, and I have confidence that you will maintain that attitude throughout the course of the case. It requires no particular quality of the mind or the spirit to assume and maintain a fair and impartial attitude. It requires only a conscientious determination to do so, and there is no reason, though you may lack the training which Judges may have, there is no reason why you cannot conduct yourself throughout this trial conscientiously with an impartial and fearless attitude. To do so be careful in your conduct. Be on your guard at all times so that at some loose moment you may not unwittingly embarrass yourself or the trial of this case. Be ever mindful of your responsibility and of the very high dignity and honor of your position. Especially avoid positions and situations arising as you go about and in and out of the courtroom which might invite a discussion of the case or which might throw you into a body where it is being discussed. Carefully avoid any discussion by yourself, even to members of your own family. You must determine the case upon your own judgment, so do not allow any suggestion from anybody else to creep into your mind, the result of which might be to prevent you from acting fairly and impartially.

Avoid reading of the case; doubtless there will be articles in the public press from day to day. Those articles are written by gentlemen who undoubtedly desire to make fair presentation of what occurs in Court, but they are written rapidly and sometimes without a just appreciation of the significance of the things which they purport to report, and so for one reason or another it may not be presented in the way in which it has actually occurred, or under the same condition as it occurred here and therefore may create a different impression. Now, you are here. You see and you hear this evidence. There is no reason for you to read about it any more than there is for me to do so. I don't have to. Neither do you, so I enjoin upon you very strictly not to read any printed matter of what purports to concern this case.

If at any time anyone approaches you in order to speak to you about this case, or if anyone does attempt to speak to you or influence you concerning this case, it will be your duty to report it to the Court at your first opportunity so the Court may take appropriate note and action.

And those things, I think, ladies and gentlemen, if you will bear them in mind continuously and without the Court constantly reminding you of them, I think will guide you along throughout the period of this trial in a way which will leave you at the end of it in the same fair and impartial state of mind as you are today.

Now, I am putting my confidence and my trust in you and I want you by your conduct and demeanor about this Court and away from the Court at all times to appreciate what it has meant to you for the Court to repose that trust and confidence in you. It has relieved you of what would have amounted to a virtual imprisonment for a long and indefinite period. Bear that in mind and that is because of the solemn oath you have taken which I am sure you understand and appreciate—because I am sure you realize your honor and dignity as jurors—it is because I am confident of your intentions and ability to maintain the honor and integrity of yourselves as jurors that I wish now

to permit you to go to your homes without any further admonition, but with the hope and confidence and trust which I have expressed and which I hope will be respected.

Now, as I indicated at the noon recess, the jurors will always be permitted to leave the courtroom first. When you leave I want you to disperse right away; get away from the courthouse at once, do not linger around. I will expect you here at ten minutes to ten each morning, unless I indicate an earlier time. You will be here and come into this room and assemble there and be ready to answer the roll call in your seats before I formally open Court, as the Clerk calls your name. Be here promptly at ten minutes to ten. You will now be excused.

(Whereupon, at 4:15 p. m., an adjournment was taken until tomorrow, Thursday, Feb. 6, 1941, at 10 o'clock a. m.).

FEBRUARY 6, 1941

MORNING SESSION

Mr. Baker:—Dr. Christie is much worried; he has come down with an attack of gallbladder trouble and is at this time unable to be present.

THE COURT:—That is all right. We can take that matter up during a recess, if necessary.

After summarizing his statement of the afternoon Mr. Lewin proceeded:

Mr. Lewin:—I told you that the defendants, as a powerful group, determined to destroy Group Health Association because they realized it was a business competitor of theirs, and they determined to destroy it by boycott; and then I told you of the principal means they adopted to shut them off from gaining a medical staff from any members of these large societies, and shut them off from getting a medical staff from even outside these societies by intimidating such members.

Now, let us take up the third of these means. The first was the staff boycott; the second the consultation boycott. The third means were attacks by the defendants on Group Health Association doctors, in order to induce them to resign from Group Health Association, or if they did not do so, to discredit them.

GROUP HEALTH ASSOCIATION

The Group Health Association had been incorporated in February, 1937, you will remember. Throughout the summer it had been trying to get its business together, and then its initial staff of five doctors, the medical director—the old gentleman whom the Association had just appointed, and who had just left the Veterans Bureau—Dr. Selders, a surgeon; Dr. Hulburt; Dr. Allan Lee, interns, general practitioners; Dr. Scandifio, who was a pediatrician, was the child specialist here in Washington; and a little later, a young doctor, Dr. Richardson, to make house calls upon the members who could not come to the clinic.

Dr. Selders was a man 45 years of age. He was a surgeon. He had practiced privately in Texas. You will begin to observe why the Harris County Medical Society comes into this case as a defendant. He was a member of the Harris County Medical Society in good standing, and therefore a member of this very American Medical Association, this Chicago corporation, which is a defendant here.

Dr. R. Stephen Hulburt had been engaged in the District of Columbia for a number of years in the practice of medicine; so had Dr. Allan Lee and Dr. Francis Richardson. They both came from private practice in Washington. Dr. Scandifio had been a child specialist here in Washington for a number of years.

Now if there was anything wrong with this staff, as I said yesterday, the fault is directly attributable to these defendants who were engaged all that time, all through that summer, in combating Group Health, and in an effort to prevent it from getting doctors. Up to this time they had been actively engaged in using their efforts—to use their own words—in combating it, although they didn't even know the names of all of these doctors. The evidence will show they had been anxiously awaiting the announcement of the doctors' appointments. The conspiracy had been in operation for many months and plans had been made to apply these boycotts against such doctors as would be appointed by Group Health Association, whoever they might be. On the day of the announcement, the A. M. A. agent stationed here in Washington telegraphed their names to the headquarters of the A. M. A. in Chicago, and immediately the defendant West wrote from Chicago—he is the general manager of the A. M. A.—he wrote to inform the District Medical Society here of their names, and pointed out that Drs. Lee and Scandifio were members of the District Medical Society and of the A. M. A. in good standing. So we had three members of the A. M. A. on that list, and he pointed out

they were in good standing. Three days later one of the prominent members of the District Medical Society engaged in this conspiracy wrote the defendant Woodward, the chief of the A. M. A.'s bureau of legislation, and this letter was passed on to the defendant West. In that letter the writer expressed the fear, his fear, that "this group"—the doctors who had identified themselves with Group Health Association "will probably become medical outcasts so far as we are locally concerned." You will see from the evidence how completely this prediction and intention was borne out. The evidence will disclose that attacks were made on each of the Group Health Association doctors, as I have named them, with the exception of this Dr. Brown. The attacks succeeded in the cases of three of these doctors: Dr. Lee, Dr. Hulburt and Dr. Richardson, internist, who were induced by pressure exerted by the District Medical Society to abandon Group Health, and Group Health Association thereby lost their services completely. But the evidence will also show that the objective failed in the cases of Drs. Scandiffio and Selders. These two doctors refused to be intimidated; they stuck to their guns and, as a result, disciplinary action was brought against Dr. Scandiffio here, and against Dr. Selders away down at the end of this long arm of the defendant corporation, the A. M. A., in Texas, in an effort to punish them. Now, as I said, two of them were members of the local staff, that is, two members of the staff were members of the District of Columbia Medical Society in good standing, namely, Drs. Lee and Scandiffio. The announcement of the appointment to the staff came on the first of November. On November 2nd, one day after that, one day after they joined Group Health Association, they were cited by Dr. Hooe to appear before his disciplinary committee, the disciplinary committee of the District of Columbia Medical Society, and were so cited solely because they had accepted positions with Group Health Association; and by that committee they were made the subjects of charges. Although they had as members reported the terms of their contract with Group Health Association and had done so as soon as the terms of their contract was reduced to writing, they were nevertheless charged with:

1. Having associated themselves professionally with a group of physicians who had not received the approval of the Society; and

2. They had not reported to the Society the oral understanding that they had made in November, or thereabouts, before the contract was reduced to writing.

As I said, this disciplinary committee was headed by Dr. Hooe, and he recommended that solely on these grounds these doctors be expelled absolutely from the Society. The two doctors were tried before the members of the Executive Committee of the Society, who purported to act as judges. The presiding judge at this trial was E. Hiram Reede; the associate judges included Drs. Neill and Sprigg, chairman of the Executive Committee, and Dr. McGovern, chairman of the subcommittee, which had already, during the summertime, recommended these boycotts against Group Health Association. He was one of the judges, and Dr. Conklin, the secretary who had written these letters enclosing the white list, on which the name of Group Health Association did not appear, likewise participated in the trial. Last, but not least, the defendant Hooe himself acted as a judge, although he was chairman of the committee that actually brought the charges.

ACTION OF DISCIPLINARY COMMITTEE

We will offer in evidence the stenographic transcript of those proceedings, and it will be disclosed incidentally that they conducted there a hearing, a so-called trial, which was unfair from first to last, and a perfect travesty on justice. The main purpose of the trial, as I have said, was to frighten these two doctors and thus coerce them into abandoning Group Health Association. The evidence will show those tactics succeeded in the cases of Dr. Allen Lee and Dr. Francis Richardson, both young men. After one session the latter had enough, and he was induced to recant and to abandon Group Health. Now, was he still punished for what he had done? Oh, no. Immediately thereafter the charges were dropped against Lee and he was taken back into the fold of the District Medical Society where, as far as I know, he still remains. But those threatening tactics did not succeed in the case of Dr. Scandiffio. He was young too, but he stuck to his guns. As a result however he paid a heavy price of complete expulsion from this enormous medical society here in the District and from the A. M. A. Dr. Hulburt, another of these doctors, did not escape. He was not even a member of the District Medical Society. Nevertheless, he was not immune from their attacks. Representatives of the District Medical Society exerted every effort to cause him to resign,

until, in November 1938, he quit the Association. After he left Group Health Association under that pressure, he was rewarded with hospital privileges, admitted to the courtesy staff privileges at Columbia Hospital, a privilege he had been trying in vain to secure, but which within a month after he quit Group Health he was accorded, and given access to that staff.

Little Dr. Richardson: he joined the Group Health staff to make these house calls. He enjoyed and had enjoyed the hospital privileges at Sibley Memorial Hospital, one of these twelve Washington hospitals; and in June 1938 he was approached by two members of the District of Columbia Medical Society and told that if he continued to serve on Group Health staff he would lose those hospital privileges. It was too much for him. The very next day he resigned from Group Health Association.

Now, Dr. Selders—just another incident. He was a member of the A. M. A., because of his membership in the Harris County Medical Society. He was in good standing down there in Texas. He had been a member for years. Two days before Group Health Association opened its clinic the long arm of organized medicine reached out. The defendant Conklin, again acting as secretary for this local medical society, wrote to the secretary of the Texas State Society informing him of Dr. Selders' employment, and the secretary of that society wrote back, requesting additional information so that charges of unethical conduct could be lodged against Dr. Selders. As a result of some further correspondence this Harris County Medical Society actually brought proceedings to expel him from the A. M. A. They never did expel him, but the evidence will show that the proceedings were instituted against him. And you are going to have access to the original records. The only charge against him was that he had associated himself with Group Health Association. For thus aiding and abetting these local defendants, and this powerful A. M. A., the Harris County Association, not the members individually, but the association, became a part of this conspiracy and was named as a defendant by the grand jury.

I now come to another serious means employed, the effort exerted to coerce and induce the independent hospitals to join in this conspiracy and themselves close their doors to Group Health Association doctors.

It is charged that the defendants conspired and coerced, or conspired to coerce these hospitals to boycott Group Health Association doctors from practicing medicine. Then, the defendants are charged with placing unlawful restraint on hospitals in the conduct of their own hospital businesses, and with employing these restraints on the hospitals as a further means for restraining and destroying the defendants' competitor, Group Health Association.

HOSPITALIZATION

Among the services that Group Health offered its members in return for the dues which they paid were twenty-one days hospitalization where needed, and without any additional expense; and surgical and medical treatment by Group Health Association doctors while they were in the hospital. Now they could have their own doctors if they wanted to; this is what they were entitled to. We will show that it was essential to the success of Group Health that it be free and unhampered in gaining access to these courtesy staffs of doctors practicing at these hospitals. I want to make absolutely clear to you that it is not the contention of the Government that Group Health Association, or any other clinic, has the unqualified right to thrust itself on any hospital it chooses and demand access thereto from any hospital, which acts independently and of its own free will in its desire to exclude such person or doctor. The evidence will show that Group Health and its doctors did not claim this right. They expected only equal opportunity in procuring these privileges. They merely took the position, and it is the position of the Government, that they had the same right as any other person, and that Group Health doctors had the same right as any other doctors, unrestrained and unhampered by any combination of these powerful defendants when they came to deal with each independent hospital; and further that these hospitals had the exclusive right to decide for themselves independently and separately, and uncoerced and unhampered by any pressure, what clinic or clinics they would recognize and what doctors they thought were of sufficient standing to admit to their hospital.

Now there are 12, and only 12 private hospitals here in Washington; there are some smaller ones. However, there were available to Group Health Association only the 12 which I will now refer to. Eleven of these are located within the city limits of Washington, and I will give their abbreviated names, to make it easier. They were Casualty, Children's, Columbia, Emergency, Episcopal, Garfield, Georgetown, George Washington, Homeopathic, Providence, and Sibley; and another hospital

which was also available, located out in Takoma Park, and known as the Washington Sanitarium. These 12 hospitals will be referred to in this case as the 12 Washington hospitals, without naming them. Each of these 12 hospitals is owned, not by the defendants but by independent corporations, and the control of the business affairs of each of these hospitals is entrusted by their corporate charters, not to the defendants but to a lay board of trustees, somewhat similar to the governing board of Group Health Association. Each of these hospitals has two kinds of medical staff. The first is known as the regular or attending staff; it manages the medical affairs of the hospital, as it should do. The second has no voice in the hospital affairs. It is known as the courtesy staff, and it is composed of doctors not on the regular staff, but who are permitted to treat their patients in that particular hospital. Except in emergency cases only those doctors who are members of the regular or attending staff, or who have been elected to the courtesy staff, are permitted to treat their patients there. If a terrible emergency arises they break down that rule. Group Health Association doctors did not even ask to be put on the regular or attending staff of that hospital; they did not ask for any voice in the medical management of the hospital, but the evidence will show that they did ask to be admitted to the courtesy staff. And the evidence will show that due to the defendants' conspiracy, and while it continued, all these hospitals failed to grant these applications, not to just one doctor of Group Health but to all doctors of Group Health; and such doctors of Group Health were excluded therefrom. And except in emergencies, the members of Group Health Association when admitted to these hospitals were denied treatment of their own free choice; that is, by the doctors of Group Health Association whom they wanted to treat them.

We will show you from the minutes of the District Medical Society how the defendants combined to exert this pressure on each one of these hospitals to cause them to exclude Group Health doctors. And we will not let it rest there. We will take you to the written records of each of these hospitals and show you how each one of these hospitals in turn had to succumb to this pressure and thus become co-conspirators with the defendants against the Group Health Association, and thus complete and make effective the boycott against Group Health Association.

CLASSIFICATION OF HOSPITALS

Now, before outlining in further detail what the evidence will show about the workings of that boycott I shall explain to you certain circumstances which gave the A. M. A. primarily and the District of Columbia Medical Society also the power to bend the hospitals to their will, and thus exercise control over those hospitals. The evidence will show that the power of the A. M. A., the big Chicago corporation, sprung primarily from its ability to withhold from any hospital certain all-important advantages in the matter of hospital intern training for residents. And the evidence will further show that the power of the District of Columbia Medical Society sprung primarily from that society's power practically to unstaff any hospital which the District Medical Society did not see fit to grant its approval to. Now, first, as to the A. M. A. power! It is customary for medical students, after graduation, to serve one or more years in hospitals for experience; they are called interns. They do it to gain more experience before they branch out for themselves. And when a medical graduate desires to specialize he may spend additional time in these hospitals as a resident, where he renders valuable services to the hospital but in return receives very little money. For a number of years the A. M. A. has undertaken to maintain a list of hospitals throughout the United States approved by it as qualified to give such training; and it is the only large organization in the country that does that. We will show that this approval, once acquired, is of immense value to any hospital, because if it is withdrawn that hospital suffers a great loss of prestige, and a black eye. Furthermore, since interns and residents will put in their time only in an approved hospital, one not approved cannot attract these men. In that event the hospital has to go out on the market and employ other doctors who have received their postgraduate training elsewhere.

The Government evidence will show that since A. M. A. has embarked on such an approval program it is essential to any Washington hospital not to be left out. Typical of such evidence is a letter which was written in August 1937, right here in this conspiracy, by one of the superintendents of these Washington hospitals to the defendant A. M. A., in which it was said that "No words can express my distress at the possibility of losing the approbation of our intern training school," and that such loss would prove a dire catastrophe to the hospital. And that ability to grant or withhold its approval at the will of its heads gave the A. M. A. power to impose such

conditions as it pleased in return for that approval. And we are prepared to show—this is not theory but actual practice—we are going to introduce direct evidence to show that the A. M. A., through its officer and agent, one of its full-time employees, exercised this power upon five Washington hospitals during the period of this conspiracy, and in furtherance of its objectives. Dr. Cutter is a full-time employee of the A. M. A. He is the secretary of the A. M. A., Council on Medical Education and Hospitals, and, as such, he is charged with the duty of recommending to the A. M. A. which hospitals shall be given its approval or denied its approval. Shortly after Group Health Association was organized, Dr. Cutter was informed of that fact by one of the members of his counsel located here in Washington, who wrote him at once, and with that knowledge in his possession, in March 1937, Dr. Cutter invoked a regulation of the A. M. A. that only members of the American Medical Association be admitted to the staffs of its approved hospitals, and made written demands upon the private hospitals in Washington here that they permit nobody not a member of the A. M. A. to be on any of their medical staffs. Those letters were expressed graciously and courteously enough but they were none the less a boycott. And during the summer and fall of 1937, Dr. Cutter succeeded in obtaining from four of the Washington hospitals—Colonial, George Washington, Georgetown and Providence—assurances in writing that they would comply with this demand of the A. M. A.; and in addition to these assurances from these four he received from another, a fifth Washington hospital in writing, a communication of its willingness to comply with this demand. We will show that compliance with this demand resulted in a situation where a doctor, although licensed to practice under the laws of the land, was not permitted to care for his own patients in any of these five Washington hospitals if, for any ground, reasonable or unreasonable, he should not be admitted to membership in the A. M. A., through one of these local societies, or if, for any other reason whatsoever, he should be expelled from the local society and, therefore, from the A. M. A. This demand of the A. M. A., and the responses which it got from these hospitals, operated directly to exclude Group Health Association doctors from these hospital facilities.

In addition to the activities of Dr. Cutter which I have described, we shall also offer in evidence testimony to show that the A. M. A. permitted the District of Columbia Medical Society to exert its pressure on the Washington hospitals to bring about the exclusion of Group Health Association doctors from these Washington institutions. The connection of the defendants Drs. Fishbein, West and Woodward—these full-time employees of the A. M. A.—in pointing out to the profession generally and to the members of the District of Columbia Medical Society particularly, the use of this weapon of exclusion, will also appear in the evidence. The defendant Fishbein is the editor of the A. M. A. Journal; the defendant West is the general manager for the A. M. A. The evidence will show that they were formally authorized to bring the Group Health Association's activities to the attention of the medical profession; and that acting under such authority they caused to be published in the A. M. A. JOURNAL of October 2, 1937, an article attacking Group Health in highly clinical terms; and that article was written by the defendant Woodward of the A. M. A. and was disseminated among these 95,000 members of the organization throughout the country. Special pains were taken, the evidence will show, to see to it that it got to the local doctors and to emphasize, among other things, these pointed statements with reference to Group Health Association. Particularly was attention invited to those members of the profession who were characterized as having medical services, to be by them in turn sold to others, and the fact that such doctors would be looked upon by the profession generally as being on the outer verge of ethical practice, if not altogether lost. As to those the communication stated, "It is not clear how they are to obtain qualified consultants or procure hospital services for their patients. In any event medical care in the associations would likely to be handicapped by difficulties likely to be experienced in obtaining the best consultants' services and hospital facilities," adding that those who had for sale their services to an organization like Group Health Association for resale, "are certain to lose professional status."

Now, if the true meaning of that paragraph is not clearly expressed we will show by other evidence that the other defendants expressly took note of its implications.

Now, let me return to a description of the evidence on those points against the District of Columbia Medical Society. The local district society had also set up machinery whereby it could influence the policy of the hospitals in Washington. Its constitution, which will be offered in evidence, forbids its 825 members from accepting assignments with or continuing to serve on staffs of any hospital not approved. By the simple with-

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drawing of its approval from any of these Washington hospitals, for any reason whatsoever, the local defendant, District Society, could unstaff any hospital it chose; and this policy to unstaff any hospital by the simple expedient of withdrawing its name from the approved list gave the District Society power to impose the unreasonable requirements it did impose and which the evidence will show that the District Medical Society and its members were quick to adopt and put into effect this suggestion that emanated from the parent body, the A. M. A., in Chicago. Just a week before the A. M. A. JOURNAL article appeared on October 2, 1937, at a meeting attended by six of the defendants here, a resolution was passed unanimously that the membership be admonished to read the entire article for their own information and guidance; and we will show that resolution offered by one of the defendants named in the indictment, and seconded by another, to the effect that a copy of this article be sent to each member of the Society as an enunciation of its future policy with respect to combating the Group Health Association. The evidence will show also that the author of that resolution told his associates that such resolution did express the policy of the society. And we will show that the communication to which I have heretofore referred stating:

"As to the ethical responsibilities of the Medical Society of the District of Columbia, and its members, the conclusion to be drawn from the policy as announced from the A. M. A. is inescapable"; and again referring to those combinations of doctors who sell their services to organizations for resale as being, and I am quoting, "certain to lose professional status."

And the evidence will show that the resolution expressly stated that the District of Columbia Medical Society is in full accord with the contents of the communication referred to; of such report, that is, the A. M. A. article, both as to the established facts therein set forth, and the implications to be drawn therefrom.

The evidence will further disclose that this feature of the plan, the hospital boycott feature which emanated from the A. M. A. to combat Group Health Association, merely confirmed and supported what already had been plotted by the local defendants of the District Medical Society. The proof will reveal that the formation of the Group Health Association had been discussed by the Executive Committee of the defendants at a meeting early in June, 1937, attended by a number of individual defendants, and that at that meeting one of the co-conspirators explained that the medical profession had two weapons; one, forbid consultations with physicians doing this type of work; and two would be to withhold approval from hospitals that would take in cases or assist the movement in any way. At a later discussion of the movement this same group were told that there were two ways available to combat Group Health Association: one, to discipline their own members who undertook to participate; and two, the possibility of restraining the hospitals through pressure on their staff.

During the summer of 1937, as I have said, these various subcommittees were appointed to make recommendations with regard to Group Health Association. One of these subcommittees, of which Dr. McGovern was chairman, and Dr. Hooe a member, presented a report in writing to the Executive Committee on July 12, 1937. We will introduce that report in evidence, including the statement thereof "The Medical Society by its present control over its members and through them of the hospitals, can adequately fight, if it is so desired, these small units. Full-time employees of the corporations could probably easily fail to be put on courtesy lists of the hospitals for one reason or another without the fact of the connection with the cooperative being even mentioned," and I still continue to quote, "In fact, any of the above methods would necessarily have to be camouflaged to the nth degree."

I have heretofore told you how the purposes of the A. M. A. and the District Medical Society were to be served through action by and pressure upon their own members; also how by the simple expedient of omitting the name of Group Health Association from the list which it approved, the white list, which it sought to obtain on a basis equally with others. I shall now point out to you that there is evidence that this white list was sent to each one of the Washington hospitals by the District Society and that it was intended to and that it did constitute a direct threat to such hospital of the consequences they might expect if they granted hospital facilities to Group Health Association or any of its doctors. But the defendants were not content with that. The evidence will reveal that the Executive Committee of the Society, attended by seven of these defendants, decided that the Society send a more pointed letter to each of these hospitals, directly asking these hospitals for

their cooperation. And this proposed letter, characterized by the defendant Willson as a veiled threat to the effect that if the hospitals did not comply the society would unstaff them, was sent. And we shall further show that in moving adoption of this letter the defendant Hooe moved that the letter warn the hospitals that if they failed to cooperate in every way they might not be on the approved list. The minutes of that meeting will show that while a discussion was underway relative to sending that letter one member inquired, and I quote, "If it was meant that the members of the Society would not be permitted to practice in the hospitals who did not subscribe? In other words, if they attempted to practice in the hospitals not approved whether the members of the Society would be bound to keep clear of such hospitals?"

The minutes further show that Mr. Sprigg, Dr. Sprigg, replied that that interpretation was correct. The minutes also reveal that some of the members thought that was too bald and in lieu of it the Medical Society at its meeting on November 3, 1937, attended by about 160 members, including eight of the defendants, determined to obtain this cooperation from the hospitals by less open and more facile methods. The minutes of that meeting will show that the Society formally adopted a resolution. And this documentary evidence will show further it was moved first by Dr. Willson and seconded by defendant Martel, and it was placed in this indictment by the grand jury in its return. This is the resolution:

"WHEREAS, The Medical Society of the District of Columbia has an apparent means of hindering the successful operation of Group Health Association, Inc., if it can prevent patients of physicians in its employ being received in the local private hospitals; and

"WHEREAS, The Medical Society of the District of Columbia has no direct control over the policies of such hospitals as determined by their lay boards of directors, except through its control of its own members serving on their medical staffs; and

"WHEREAS, Conflicts between the Medical Society of the District of Columbia and any local hospitals arising from an attempt to enforce the provision of Chapter IX, Article IV, Section 5, of its Constitution should be assiduously avoided, if possible, because of the unfavorable publicity that would accrue to its own members; therefore, be it

"Resolved, That the Hospital Committee be, and is hereby, directed to give careful study and consideration to all phases of this subject and report back to the Society, at the earliest practicable date, its recommendations as to the best way of bringing this question to the attention of the medical boards and boards of directors of the various local hospitals in such a manner as to insure the maximum amount of practical accomplishment with the minimum amount of friction and conflict."

We shall introduce evidence to show you that this hospital committee which was thus assigned the task of working out the best way of approaching the Washington hospitals as stated in that resolution, consisted of at least eleven doctors, each of them being a member of the District Medical Society and each of them having a position on the regular or attending medical staffs of one or more of eleven of these private hospitals; that is, on the staff that manages the medical affairs of the hospital.

The hospital committee was so constituted by the District Medical Society that it included a representative of the attending staff of each of these eleven hospitals, and the defendant Warfield was the chairman of the committee, and the defendant Young and Martel were members of it.

And I have stated before, the evidence will show Group Health Association opened its clinic November 1, announced its initial staff of doctors, Dr. Brown, medical director; Drs. Selders, Hulburt, Lee and Scandiffio.

I tell you that Lee and Scandiffio were members of the District Medical Society in good standing and members of the A. M. A. in good standing.

Dr. Lee and Dr. Scandiffio already had courtesy staff privileges at a number of the Washington hospitals.

Dr. Richardson when he came a little later had his courtesy staff conceded.

We shall show you the fact that Lee and Scandiffio enjoyed these privileges was specifically pointed out by the defendant Neill, then president, at a meeting held November 11, 1937, and when this was pointed out the defendant Yater suggested that the hospitals should be contacted and assurance should be given that no member would be allowed to practice there if he is a member of the hospital committee which it made.

And the first report of the staff of Group Health Association at that meeting and which was not strong enough, was reported back to that committee by the Society on the grounds that there seemed to be no assurance that the members of the staff of Group Health Association are not already or might not become members of the staffs of the hospitals.

The evidence will show you how completely succumbing these hospitals were to any such pressure from the Medical Society. On November 18, 1937, the secretary of the executive committee of the Georgetown University Hospital, an independent institution, wrote actually asking this Society whether the hos-

pital should accept Group Health Association patients; and whether the hospital's medical staff should consult with Group Health Association physicians.

We shall show you that at another meeting, December 1, 1937, the defendant Warfield, as chairman of the hospital committee, again reported for the committee, offering a resolution which was adopted then that the hospitals should follow the recommendations of the A. M. A., limiting their entire staffs to A. M. A. members.

And the evidence will show that the same defendant Conklin was again authorized to send that resolution—a copy of it—to each one of the Washington hospitals.

And he did so.

The evidence will reveal that all twelve Washington hospitals succumbed to this pressure of defendants; and that these boycotts inaugurated and fostered by the combination and conspiracy charged in this indictment were completely successful.

So effective were they that on March 28, 1938, the same defendant Warfield, reporting for his hospital committee, was able to announce triumphantly to the Society:

"Only three of the local hospitals, Columbia, Sibley, and George Washington, have not followed this recommendation of the A. M. A. All of the local private hospitals are cooperating fully with the Medical Society with respect to Group Health Association.

"At the present time only one of the local hospitals has on its staff lists the name of a physician connected with Group Health.

"This hospital does not revise its staff lists annually as do the other hospitals but it has assured the chairman of the hospital committee that steps have been taken to deny this physician hospital privileges."

Once the defendants succeeded in inducing these hospitals to adopt that rule that courtesy staff privileges would be denied any doctors who were not members of the A. M. A., the defendants' task, as you can see, in making this boycott effective, became comparatively simple.

All they had to do was to expel those members of Group Health Association's medical staff who were members of their Society, Lee and Scandifio, and to bring Harris County's Society into the conspiracy and get them to expel Dr. Selders. And to see to it that all applications that the Group Health Association doctors might make to any of these hospitals would be denied independent consideration of those hospitals but which would be turned down because of this agreement which they had arrived at with hospitals through their coercion.

You will recall that one of the subcommittees of the executive committee of the Society had concerned itself with Group Health Association and had reported as early as July 12, 1937, that any doctor connected with Group Health Association could probably easily fail to be put on the courtesy lists of the hospitals, for one reason or another, without the fact of his connection with the cooperative being even mentioned, and, in fact, any competitive methods would necessarily have to be camouflaged to the nth degree.

And this, the evidence will bear out, is exactly what happened.

We will introduce letters which the president of the Group Health Association, who will take the witness stand, wrote these hospitals in 1937, with the exception of Casualty and Washington Sanitarium—those two were replied to later telling them of Group Health Association—requesting that they admit the members of Group Health Association at the request of the Group Health Association medical director, and requesting also that the Group Health Association surgeon, Dr. Selders, be permitted to attend these patients while hospitalized.

And he enclosed with these letters a statement of Dr. Selders' qualifications and experience.

And later on similar applications were made by Group Health Association to Casualty and Washington Sanitarium.

And applications went later on to some of the hospitals to admit other of the Group Health Association doctors in addition to Dr. Selders. It wasn't just applying to him.

And Dr. Selders was given temporary privileges in normal obstetrics only, at Columbia Hospital.

Dr. Selders was a surgeon and he was given some of the temporary privileges in normal obstetrics only, temporary privileges for about a month for emergency cases at Garfield.

And Dr. Selders and some of the other Group Health Association doctors were permitted to treat a few Group Health Association cases at a few of the other hospitals.

Ten of the Washington hospitals to which Dr. Selders applied requested him to fill out formal application blanks giving his references, in addition to his education and experience.

When he did so, his application and references were referred by the hospital authorities to the attending medical staffs of those hospitals and their committees, which staffs and committees were composed almost exclusively of members of the District Medical Society and of the A. M. A.

And from the records of the various hospitals which we will offer in evidence, you will perceive that at least ten of the individuals charged as defendants in this case were members of the medical staffs or credentials committees of a number of these hospitals and acted thereon to protect their respective hospitals from admitting their competitors, Group Health Association doctors.

Dr. Selders' written applications, which he was asked to submit by ten of these hospitals, will be here in evidence.

And of these ten hospitals to which Dr. Selders supplied references, seven did not even bother to communicate with him.

And, the evidence will show that eight of the twelve Washington hospitals to which Dr. Selders applied for courtesy privileges formally refused to admit him there; four simply failed to grant his application. And Dr. Selders was never admitted to the courtesy staffs of any of these hospitals.

And we will offer in evidence the minutes of these various boards, staffs and committees of the hospitals and their correspondence, and it will be clearly revealed therefrom that this treatment accorded the Group Health doctors by all of these boards was directly caused by the pressure which these powerful defendants in this case exerted upon them, and by the opposition of the defendants to their competitor, Group Health.

And this situation was not confined to Dr. Selders. There is more evidence of this character relating to him than to any of the other Group Health Association doctors because he happened to be a surgeon of Group Health Association, and, as a surgeon, hospital privileges were particularly important to him. But let me make this clear, that the evidence will be clear that this hospital boycott was planned by the defendants before they even knew Dr. Selders, and that it was aimed not merely against Dr. Selders and not against Dr. Selders as such, but against the Group Health Association and any Group Health doctors who should request the privileges of treating Group Health patients in the hospital.

For example, one of these hospitals went so far as to give written instructions to its admitting officer listing all six of the Group Health doctors by name and stating, "These doctors are not to be allowed in at any time. And also use every precaution that no Group Health Association patients be admitted."

Dr. Allan Lee, before he was induced by the defendants to abandon Group Health by these charges that they brought against him, had applied for courtesy staff privileges at George Washington Hospital.

The defendant Washington Academy of Surgeons—I haven't told you much about them yet but that is coming along; it is part of the picture—this group of surgeons, on Dec. 8, 1937, two days before Lee was induced to resign, recommended to the George Washington Hospital that it disapprove Dr. Lee's application.

There is another instance, in the case of Dr. Lee.

When he joined Group Health Association he had courtesy privileges at the Emergency Hospital; on October 30, when he decided to join Group Health, he attempted to resign from the District Medical Society.

This resignation was not acted upon by the District Medical Society and later Dr. Lee withdrew it when they brought these charges against him, because he did not want to quit under fire at that time.

But, on November 1, just two days after he had presented his resignation to the District Medical Society, he received a letter from the Emergency Hospital telling him that his courtesy privileges at that hospital had been revoked.

Dr. Hower, while he was a member of Group Health Association, applied to the Georgetown Hospital where he had received his training, his own Alma Mater. He merely sought the privilege of treating an emergency case there.

And that case was the subject of discussion by the executive committee of the medical staff of Georgetown, and as a result of it, Georgetown adopted for the first time, a rule strictly defining what cases should be considered emergencies.

At Sibley Hospital the executive committee of the medical staff required an investigation to be made to ascertain whether Dr. Hulburt had any privileges there.

Dr. Hulburt also applied to Columbia.

Now, this is significant:

He applied merely for permission to treat a case of normal obstetrics. And, so long as he remained a member of Group Health Association, that application at the Columbia Hospital was held in abeyance.

But, when he resigned from Group Health Association under pressure in April of 1938, April 25, then, and only then, after he had left Group Health Association, was he rewarded with admission to Columbia Hospital. And his application there was granted in June of 1938.

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That is not all. The rest of the doctors as well. Here in 1938 Dr. Halstead applied for courtesy staff privileges at a number of Washington hospitals.

He too was a member of the Group Health staff, up to the time the indictment was returned in this case, Dec. 20, 1938—no courtesy staff privileges at any of these hospitals had been accorded to him.

The evidence will show that other Group Health Association members received the same treatment.

It will show that some of the Group Health doctors, as I have said, although not accorded privileges to treat Group Health Association cases at any hospitals except in emergencies, did from time to time treat other cases during the hospitalization. But even in such cases these doctors recognized that they were there merely on sufferance and often the hospitals required that their connection with Group Health Association be conceded and that the treatment take the form of treatment by the doctor as his own personal cases, in these rare cases where he was permitted to do it.

And we will also in this evidence show examples of harsh, outrageous, impossible and unreasonable treatment accorded to the members of Group Health Association by a number of these hospitals.

Some of the patients taken to the Washington hospitals following automobile accidents or for serious operations, were turned away when they or their relatives insisted upon treatment by the Group Health Association doctors of their own choice.

They were forced to seek accommodations elsewhere. In one instance such expulsion from the hospital occurred after a Group Health Association member had been admitted as a patient, put to bed and given morphine, preparatory to operation, then denied services of a surgeon, Dr. Selders, because of his connection with Group Health.

She had to dress, in this dangerous condition, leave the hospital, get her own taxicab. Her friends were with her and they got it at the door. She was seriously sick and in this stupefied condition as a result of morphine.

In other instances Group Health Association patients in need of emergency care were kept waiting, their treatment delayed, and their health jeopardized, while the hospital authorities haggled and deliberated over the question of admitting.

And furthermore the evidence will show that one of these hospitals went so far in their boycott of Group Health Association members that it refused consistently to accept Association checks in payment of the hospital bills—made them get cash and bring it in there.

Even in cases where the members of Group Health were operated on not by Group Health doctors but as private patients of doctors not connected with Group Health in any way. Their mere association with Group Health made these hospitals refuse to accept any Group Health Association checks even.

WASHINGTON ACADEMY OF SURGEONS

Now, I promised to tell you about the part the Washington Academy of Surgeons played in this conspiracy. I have explained before that it is an unincorporated association of surgeons here in the District of Columbia.

And after Group Health Association opened its clinic, Nov. 1, 1937, we find the president of the Washington Academy of Surgeons inviting Providence Hospital to refer applications made to it for courtesy privileges, over to the Washington Academy of Surgeons for its recommendation, and the executive staff of Providence Hospital voted to do so.

And in the same month, November 1937, Georgetown Hospital also voted to refer applications for courtesy privileges over to the Washington Academy of Surgeons.

And, five of the twelve Washington hospitals to which application was made by Dr. Selders for courtesy privileges referred his application over to the Washington Academy of Surgeons.

And this Academy recommended to each of these five Washington hospitals that Dr. Selders' application be disapproved. Washington Academy of Surgeons supplied the hospitals with their excuse. It stated, however, no grounds or reason for such recommendations, and the proof will show that it deliberately acted in this way after the most inadequate investigation, if it can be called an investigation at all, of that applicant's qualifications or experience; and the written records of this defendant, Washington Academy of Surgeons, will be offered in evidence and will clearly reveal the true reason for this defendant's adverse action.

Notwithstanding the fact that the chairman of the Academy's committee on hospital privileges was expressly warned again by the secretary of Washington Academy of Surgeons not to permit Dr. Selders' connection with Group Health Association

to influence its decision, the executive council of the Washington Academy of Surgeons on Dec. 10, 1937, formally voted to give weight to what they term the ethics of the applicant. Poor ethics!

Ethics include violations of some economic restrictions of the A. M. A. known as the principles of medical ethics. Thus there is written proof that Dr. Selder's connection with Group Hospital Association objected to as unethical by the defendant American Medical Association, and which the defendant, the District Medical Society, as I told you yesterday, resolved formally to consider unethical, was the real reason for the defendant Washington Academy of Surgeons lending its aid to the hospital boycott against the Group Health Association doctors.

I shall now yield to my colleague, Mr. Kelleher, who I understand will more briefly state other elements of this case, which evidence to be presented to you will demonstrate are true beyond any reasonable doubt.

Additional Opening Statement on Behalf of the United States by Mr. Grant W. Kelleher

Mr. Kelleher:—May it please the Court, and ladies and gentlemen of the jury, what Mr. Lewin has said yesterday afternoon and this morning explains the evidence which we shall offer concerning Group Health Association and the alleged conspiracy of the defendants to prevent its operation. Thus it is this conspiracy here in the District of Columbia, and only this, for which the defendants are on trial. But while the alleged conspiracy for the District of Columbia has been for something less than two years, it had the country as a whole for its background, and for a prologue it goes back several years before the commencement of the alleged conspiracy.

THE BACKGROUND

Since you cannot understand fully the significance of what occurred here unless you view the conspiracy in its proper perspective, not as an isolated local occurrence but as a part of a national picture, we propose to show you what may be termed the background of the conspiracy.

In substance, we intend to prove that Group Health Association and similar organizations throughout the country were designed to solve a pressing social problem, that is, the adequate distribution of medical care; and that the efforts of the defendants to prevent the operation of G. H. A. in the District of Columbia were but the outgrowth and result of a nationwide long-range scheme of the defendant American Medical Association to stifle competition, economic competition, from such plans. We intend to present this evidence through the testimony of various witnesses and through numerous doctors.

The most important of the witnesses will be Dr. Hugh Cabot and Dr. Michael Davis.

Dr. Cabot, as many of you may already know, is one of the foremost surgeons in the United States. For many years he was a highly successful private practitioner in Boston. He has been professor of surgery at several prominent universities in the United States. Until quite recently he was a consulting surgeon at the famed Mayo Clinic. He is now medical director of an organization in Boston very similar to Group Health Association. And Dr. Cabot is and has been for several years a member of the defendant American Medical Association.

A second important witness on this phase of the case is Dr. Michael Davis, who is also an outstanding figure in his own field. While not a doctor of medicine but a doctor of philosophy, he is an expert on medical economics; that is, he concerns himself not with the professional side of the practice of medicine, but with its economic side, that is, so that doctors' services and hospitals' services are made available to men and women everywhere. Dr. Davis has been associated with various clinics, hospitals, and dispensaries, and for some time was a consultant on hospital organization. Since 1920 he has been a member of committees of two philanthropic foundations, the Rockefeller Foundation, and the Julius Rosenwald Fund, which committees have been engaged in extensive studies seeking to determine how to improve the distribution of health services.

Now these two witnesses, as I have said, will give you the background of the conspiracy. They will show you, in other words, the need for Group Health Association, the need for group practice, to reduce the cost of care; the need for prepayment to spread the cost of care. Dr. Cabot will compare for you the practice of medicine today with what it was some forty or fifty years ago, in his early years of practice. He will tell you that there has been more progress, more advances in the practice of medicine within the last fifty years, than there had been during the entire period of recorded history prior to 1890. In 1890 the amount of knowledge then available on medical matters

could conceivably be learned by a single man. Consequently most doctors were general practitioners, family physicians. And a specialist was rare except in a few fields. Diagnosis was largely based upon physical examination; observation of the doctor through his five senses, looking at the patient's tongue, holding his ear against the patient's chest wall. The equipment of a doctor was very simple and most of it could usually be carried in his little black doctor's bag. Knowledge of disease was extremely limited. For example, appendicitis was relatively unknown, and people were frequently said to go into a decline when, in fact, they were suffering from tuberculosis. Dr. Cabot will tell us that since 1890 there has been literally a revolution in the practice of medicine. And as a result of this revolution, practice today is far better developed, more scientific, more exact, than it was fifty years ago. Bacteriology has given us serums and vaccines for smallpox, diphtheria, and meningitis. Thanks to pathology, it is now possible to detect the presence of disease in the lung by examining thin sections of the diseased tissue; and the presence or severity of infection in the body can be determined. Drugs and their administration have become a science. Physiology has been revolutionized. Since 1890 physics has given us not only radium for the treatment of cancer and the electrocardiogram for the diagnosis of heart disease, but it has given medicine the most important single method of diagnosis in the entire field of medicine, the x-ray. Now, of course, this phenomenal progress in the last few decades in the diagnosis and treatment of disease is of the greatest value to the American people. And, at the same time, it is to the eternal credit of the man of medicine and science responsible for it. And I want to say here and now, that nobody in this case intends to, or could, detract from the esteem and credit due these men of science and medicine. But, in order for the people to reap the benefits of this progress, it is important that there be an adequate system of distribution. That is, that the medical services of the men and institutions who can give it be made more available to the men and women who need it.

You will see from the evidence in this case that there are many well informed men and women today who believe in good faith and after careful study that the distribution of medical care has failed to keep pace with the problems presented by the technical advancement to which I have referred; and that as a result there is a large body of American people today who either do not receive adequate medical care or are oppressed by the heavy financial burden of the care which it does receive. The evidence in the case will show that there are at least two reasons for this. In the first place, the progress which has been made has so substantially increased the cost of medical care that under the existing system of private practice by a single doctor on a fee-for-service basis, adequate medical care is beyond the economic reach of many people. The increased knowledge in the field of medicine today has made it really impossible for a single doctor to even attempt to grasp the entire field, or any substantial part of it. And, consequently, more and more doctors are specializing. The result is that the patient, at least in serious illnesses, needs the services of not a single doctor but sometimes two or more. And, of course, under the existing system, each doctor is entitled to and must be paid a separate fee. In addition, doctors of today need far more education than the doctor of yesterday required. Most doctors today spend eight years in medical school. And then from one to two years or more as interns or residents in hospitals. The equipment of the doctor is far more elaborate, more expensive, than was that of his predecessor. For example, he must have available a well equipped laboratory, which in turn requires a skilled technician. He must have an x-ray; he must have a means for determining blood pressure. And the end result of this increase in education and equipment which the doctor of today requires is that the investment and overhead of the doctor is far greater than it was forty years ago. And that, of course, is reflected in substantially higher medical bills for the patient.

The second reason lies in the fact that illness is as unpredictable as lightning. But unfortunately, unlike lightning, it strikes more than once in the same place. Dr. Cabot and Dr. Davis will explain to you this problem; and that may be termed the uneven incidence of illness. They will tell you that one family may go for years without a single serious illness, as many of you know, and that during that same period of time another family may be literally plagued with illness, so that the cost of care for the first family is negligible, while the second family may be bankrupt by medical bills.

COMMITTEE ON THE COSTS OF MEDICAL CARE

The evidence will show that this map of the adequacy of medical care received by the American people was the subject of comprehensive research by a committee of distinguished laymen and physicians known as The Committee on the Cost of

Medical Care. Dr. Davis was a member of that committee, and he will describe it and its activities to you. He will tell you that its chairman was Dr. Ray Lyman Wilbur, at present the president of Leland Stanford University, and Secretary of the Interior in President Hoover's cabinet from 1929 to 1933. He will tell you that this committee conducted a careful study of the medical care received by 8,500 families, embracing over 38,000 individuals. The income of these families varied from as low as \$1,200 to over \$10,000, so that the study represented a cross-section of the entire population.

This study, you will see, clearly establishes that there is a remarkable relationship between the amount of care which a family can afford and the amount which it receives, for that study shows clearly that as the income of the family studied went up, the medical care went up, but as the income of the family decreased the medical care which the family received also decreased; and this even though other studies showed that the amount of illness which any family has is not affected by the income which it receives.

The study showed that families in two or three lowest income groups, receiving less than \$3,000 a year, received far less of nearly every form of medical service, including doctors' bills and hospital bills, than the families in the higher income groups. The study also graphically demonstrates the disastrous financial effects of the uneven incidence of illness and how the burdens of sickness are borne by a very few people. The study showed that approximately one tenth of the families studied in all of the income groups paid \$41 out of every \$100 spent for medical care, but that six times as many people paid only \$18 out of every \$100 spent for medical care. For example, 5 per cent of the families earning between \$1,200 and \$2,000 a year paid as much for medical care as 80 per cent of the families.

What the solution is, however, is a difficult matter. I am trying to tell you now that we neither expect nor believe that the evidence in this case will show the complete answer to this problem. This much will appear, however: Group Health Association and similar organizations throughout the country are intended to and may to some extent improve upon the distribution of medical care. Group Health Association seeks to reduce the cost of care by combining together under one roof general practitioners and specialists in the various states; the effect of which is to give a member of G. H. A. the benefit of the joint knowledge of the group and, at the same time, to reduce the cost of the service of the group by eliminating the unnecessary duplication of equipment and facilities which would result if these doctors were engaged in private practice. It seeks to spread the cost of care by a system of periodic regular dues which entitles each member to complete medical care within reasonable limits, irrespective of the amount of care which the member requires.

As I said, there is no assurance, and there can be none, that Group Health Association is the answer to the problem, and no one in this case urges that it is. But when you have heard the evidence which I have summarized I think you will be convinced that the worthwhile objective of the Group Health Association to give that body of the American people which cannot afford medical care some form of medical care, makes it highly desirable that such organizations be fostered and encouraged. And it would be reasonable for you to assume, in the absence of other evidence, that the defendant American Medical Association which purports to be an altruistic, public-spirited organization of scientific men, would be the first to stimulate and encourage experimentation of this kind.

The evidence will show, however, that the American Medical Association has maintained a consistent policy of opposition toward such plans and has taken active steps to oppose in every way it has at its command such organizations throughout the United States.

I have already referred to the findings of the Committee on the Cost of Medical Care. That committee also made certain important recommendations which Dr. Davis will explain to you. He will tell you that 35 of the 48 members of that committee, representing a very substantial majority of the committee and including numerous of the outstanding physicians of the country, recommended that in view of the committee's findings concerning the inadequacy of medical care, persons with small incomes should organize into groups for the purpose of obtaining medical care on a prepayment basis from organized groups of medical practitioners; in other words, the groups should be on a prepayment basis.

I will tell you that a small minority on this committee, consisting of nine members, vigorously opposed this recommendation and took the position that prepayment plans are undesirable.

You will be interested to learn that two of the defendants in this case, the defendants Christie and West, were among those nine dissenting members.

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We shall prove to you that immediately after those recommendations of both the majority and minority members of the committee were made public, the American Medical Association unqualifiedly opposed the views of the majority and fully adopted and approved the views of the minority. In editorials written by the defendant Fishbein and appearing in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION the report of the majority was violently criticized and its endorsers publicly excoriated, while that of the minority was undeservedly praised.

We shall show you that at its first meeting after the publication of the views of the Committee the American Medical Association, through its House of Delegates, the governing body, adopted a resolution endorsing the minority report which as I said, opposed group practice on a prepayment basis as expressive in principle of the collective opinion of the medical profession. On the other hand, we shall show you that in June, 1934, the American College of Surgeons, which consists of 11,000 of the most reputable surgeons of the United States, recommended that experiments with periodic prepayment plans be continued, because they furnish a reasonable expectation of providing for low-income groups more adequate medical care. One week after this recommendation of the American College of Surgeons was made public the American Medical Association adopted another resolution, condemning the College for its recommendation and demanding that that organization, that independent organization of surgeons, explain to the A. M. A. the reasons for its action.

FUNDAMENTAL PRINCIPLES ADOPTED BY A. M. A.
Finally, we shall show you that in 1934 the American Medical Association adopted general so-called fundamental principles to govern experiments to provide more adequate care to people with moderate means.

It will appear in evidence in this case that the American Medical Association insisted that any plan comply with its general principles if it was to be permitted by the American Medical Association, and that it insisted that all of its local societies enforce these principles.

You will see that one of these principles required that any plan embrace within it all of the qualified physicians within the locality to be served by the plan. Another required that the cost of medical service in any plan must be borne by the patient who could afford to pay at the time the service was rendered. Thus by the adoption of these "Ten Commandments" the A. M. A. made it impossible for organizations such as Group Health Association to comply, since of course such an organization was limited to the members of their medical staff, and since payment is not contemplated at the time of the rendition of the service, but is taken care of in the form of regular monthly dues. This evidence to which I have referred will serve to illustrate to you the hostile policy of the A. M. A. toward group practice on the pre-payment basis. But here and now I should like to caution you ladies and gentlemen that this hostility would not in and of itself be reprehensible if the A. M. A. had limited itself to peaceful persuasion in seeking to obtain adherence to its policy.

We shall show you, however, that the American Medical Association did not so confine itself, but that it exerted all of its tremendous powers to force doctors and hospitals throughout the United States to abide by this requirement.

POWER OF THE A. M. A.

At this time please bear in mind what the evidence will show concerning the power of the A. M. A.; how exclusion or expulsion of a doctor from that organization not only gives him a professional black eye but denies to him essential consultation with his fellows; how the system of approval and registration of hospitals makes it possible for the A. M. A. to obtain the ouster from the staff of any hospital approved or registered by it of any doctor of whom the A. M. A. disapproves for any reason whatsoever.

And we shall show you that it was the use of this power to oust from the United States experimentation with plans such as this, which furnished the pattern, the master plan of attack for the conspiracy in the District of Columbia.

We shall prove that doctors in Texas, in California, in Wisconsin were expelled from their local societies for participation in plans like G. H. A., and that in two instances the defendant American Medical Association, through its Judicial Council, approved the action of local societies by itself expelling these doctors from the A. M. A.

You will see from letters from two of the defendants in this case, the defendants West and Leland, that the action of the California Society was taken even though these two defendants knew that the doctors involved were, and I quote

them, "thoroughly competent physicians," and that the organization with which these doctors were associated, and I quote again, "delivers good medical service."

You will see that in all of these instances the defendants themselves admit that the one objection which could be taken to these doctors was that they were engaged in contract practice on a prepayment basis.

We shall go further than this. We shall show you that the use of the private hospitals in the District of Columbia to prevent the operation of the G. H. A. had its precedent in action taken by the A. M. A. to utilize its control over hospitals to prevent operation of plans in two other parts of the United States.

TRINITY HOSPITAL

The evidence will show that in 1935 the staff of Trinity Hospital in Little Rock, Arkansas, was engaged in supplying medical care to certain Little Rock citizens on a prepayment basis. On Sept. 9, 1935, the defendant Cutter wrote the superintendent of that hospital demanding an explanation, and when the superintendent, well aware of the hostility of the American Medical Association, in reply did no more than to admit the fact that the hospital was so engaged, the defendant Cutter, in a subtly-phrased letter, threatened to drop the Trinity Hospital from the register of the American Medical Association if it continued in this plan. The staff of Trinity Hospital persisted and refused to yield; and the following year you will see that the defendant Cutter made good his threat by dropping that hospital from the register of the A. M. A. because, as he wrote, "its contract plan makes it inconsistent for us to further endorse that institution."

In other words, that Cutter upheld action by the A. M. A. the effect of which was to disgrace Trinity Hospital in the eyes of the medical world.

MILWAUKEE MEDICAL CENTER

I have already told you that you would learn from the evidence in this case that certain doctors in Wisconsin were expelled from their local societies and from the A. M. A. for their participation in a plan like the G. H. A. The name of that plan was the Milwaukee Medical Center; and we shall prove that even while the expulsion proceedings of the local society and of the A. M. A. were pending against these doctors, the defendant Cutter invoked the resolution of the American Medical Association that doctors on the staffs of approved hospitals be members of the A. M. A.; he invoked that resolution as against all of the Milwaukee hospitals for the purpose of obtaining the ouster from those hospitals of the doctors associated with the Milwaukee Medical Center. And that resolution, incidentally, of the American Medical Association was adopted, according to the defendant Cutter himself, and I quote him, "to smoke out from the staffs of hospitals certain doctors who are objectionable and whom the hospital felt a delicacy about removing."

As I say, Cutter invoked that resolution against all Milwaukee hospitals, and they all yielded to that pressure except one. Mount Sinai Hospital at first refused to take the action which Cutter had recommended.

You will see from the evidence which we shall offer that in 1938, simultaneously with the conspiracy here in the District of Columbia, the defendant Cutter wrote the superintendent of Mount Sinai Hospital and told him that in view of the refusal of that hospital to drop the members of the Milwaukee Medical Center from its staff, he recommended to the Judicial Council of the American Medical Association that the hospital be dropped not only from the approved intern list but from the register of the American Medical Association. In this instance you will see that this threat brought prompt results. Within a few days the superintendent of Mount Sinai notified the defendant Cutter that all of the doctors of the Milwaukee Medical Center had been dropped not only from the active staff, but from the courtesy staff of that hospital.

This completes my side of the evidence which we shall offer to show the nation-wide opposition of the American Medical Association to group practice on a prepayment basis.

I come next to a consideration of the reasons for the opposition of the defendants to G. H. A.; and this, in turn, requires me to consider, first, the reasons which the evidence which we shall offer will show the defendants at times assigned for their opposition and the reason which the Government contends actually motivated the defendants.

In documentary evidence which we propose to offer you will see that some of the defendants urged that they oppose G. H. A. Why? Because, first, its set-up would necessarily result in a

reduction of the quality of medical service below that of the private medical practitioner, and, second, because G. H. A. was illegal.

So far as the first reason is concerned, I not only point out that the evidence will affirmatively show, first, that G. H. A., by being a purely voluntary organization, by permitting its members to drop the organization or to sign up at their own free will, gives to those members all of the freedom of choice which is either necessary or desirable; secondly, that the fact that the members of the G. H. A. are paid salaries instead of fees in no way affects the quality of medical care given by those members; and, thirdly, that the medical affairs of the Association are handled entirely by a medical staff, under a medical director, and without any interference whatever from the lay board.

QUALITY OF MEDICAL CARE

I am sure that when you have heard that evidence you will realize that the quality of medical care which G. H. A. gives to its members is at the very least the equivalent of the care which the average medical practitioner in the District of Columbia gives to his patients.

The second reason of the defendants, that is, that G. H. A. was illegal, requires some explanation by me. You will find from the evidence which we shall offer that the defendants at times urged early in the period of the conspiracy that G. H. A. was illegally organized, for one of two reasons: either, first, it was engaged in the practice of medicine without a license, or, secondly, it was engaged in the insurance business without having complied with the insurance laws of the District of Columbia.

Now, of course, ladies and gentlemen, whether Group Health Association is illegal and whether, even if it is, that constitutes a defense of the activities with which the defendants are charged, are matters of law for his Honor on the bench and not for you. But while you are not concerned with the legal aspects of this matter, you will be interested in certain circumstances concerning the successful efforts of G. H. A. to adjudicate this matter. This is so because we believe the circumstances will demonstrate to you that the defendants, in opposing G. H. A., were not particularly concerned with obtaining enforcement of the laws of the United States, but we insist they were using this claim to hide their real motive; that they entered into this conspiracy to suppress the competition of G. H. A. in the practice of medicine in the District of Columbia.

The facts which we shall show are briefly as follows:

Late in 1937 certain officers of G. H. A. became aware of the claims of the defendants concerning its illegality. They therefore approached the appropriate officials of the District of Columbia charged with the enforcement of the laws which were involved, and G. H. A. then determined to file suit to determine the legality of its organization once and for all. Accordingly, on Jan. 27, 1938, suit was filed in the District Court of the United States for the District of Columbia. That is the same court in which you ladies and gentlemen are now sitting. The suit was filed to determine whether G. H. A. was engaged in the practice of medicine or in the business of insurance, in violation of the laws of the District of Columbia. Mr. Justice Bailey, a colleague of Mr. Justice Proctor who presides here, presided in that case.

On July 27, 1938, Mr. Justice Bailey handed down a decision in favor of Group Health Association, holding, first, that it was not engaged in the practice of medicine; second, that it was not engaged in the business of insurance, and therefore that it was not violating any of the laws of the District of Columbia. In other words, he held that G. H. A. was a perfectly legitimate, legal organization under the laws controlling in the District of Columbia.

The evidence will show that the alleged conspiracy was in full swing and had been for many months prior to the filing of this suit in January 1938. This suit, as I have said, was pending for a period of six months. Now, if the defendants' justification of their activities on the ground of illegality was really in good faith, one would expect that the filing of this suit furnished a happy solution to their problem and that there would have been a cessation of their activity during the pendency of the suit and after that decision.

But what are the facts which we shall prove? We shall show you that on March 16, while this suit was pending, the District Medical Society formally expelled a physician from G. H. A. membership. On March 9, while this suit was pending, the defendant Harris County Medical Society filed formal charges against Dr. Selders looking toward his expulsion.

While this suit was pending the defendant, Washington Academy of Surgery, recommended to five of the local hospitals that they deny hospital privileges to Dr. Selders.

In the spring of 1938, while this suit was pending, Dr. Thomas Lee, acting upon the advice of the defendant Neill, president of

the local Society, refused to consult with G. H. A. Dr. Price concerning a patient with a serious heart ailment.

On March 28, 1938, while this suit was pending, the Hospital Committee of the Medical Society reported on the floor of that Society that all of the Washington hospitals were now cooperating against G. H. A. and that the only hospital which had a member of G. H. A. on its staff had given assurances that that member would be dropped.

That is some of the evidence which we shall offer concerning the activities of the defendants during the pendency of this suit.

Let us now look to the evidence concerning the defendants' activities after this suit was determined in favor of G. H. A.

It will appear in evidence that on July 28, 1938, the day after this decision, G. H. A. wrote a letter to all of the local hospitals calling attention to this decision and requesting that the members of its medical staff be now admitted to the local hospitals. What was the result? One hospital even went so far as to reconsider the matter and then deny Dr. Selders the privilege. Three of the local hospitals refused to consider any change. The rest of the hospitals ignored the letter of July 28.

Moreover, we shall show you that as late as September 1938, almost two months after this decision, a young doctor in New York by the name of Hammerly, who had been asked by Group Health Association to consider a position on its staff, wrote unwittingly to two of the defendants in this case inquiring whether A. M. A. would be offended if he took such a position.

We shall show you that the defendant Fishbein wrote this young doctor telling him that—

"It has been my observation that young men who depart from the established practices of the American Medical Association find it exceedingly difficult thereafter to achieve prestige among their fellows."

And we shall show you that the defendant West wrote this doctor and sought to discourage him from joining G. H. A. on the ground that G. H. A. was illegal—even though two months before, this court had held that G. H. A. was legal.

This evidence I think will show you that the reasons which the defendants gave at times for their opposition to G. H. A. were not the real basic reasons of the defendants.

What, then, was the real reason? We shall introduce substantial, competent evidence to prove that the real reason of the defendants was business and economic; that is, that they feared the economic competition of Group Health Association and that therefore they embarked upon and carried out this conspiracy to prevent G. H. A. from interfering with the financial return which the local defendants received from the private practice of medicine in the District of Columbia.

We shall prove to you that even before Group Health Association started, the defendants privately conceded among themselves that many people might view the plan as highly desirable, since it represented an effort by responsible, honest, public-spirited men to do something for their fellows if possible. You will see that many of the members of the local Society recognized that there was good reason to believe that G. H. A. had every reason to succeed; and we shall show you that it was this potential success of G. H. A., and not any defect or weakness in its organization, which became the real concern of the defendants, and they took action to block the operation of G. H. A. upon the theory that the success of G. H. A. and its expansion to include employees of other agencies of the Government living in the District of Columbia and in nearby Maryland and Virginia might seriously curtail the amount of private practice in the District of Columbia and thus reduce the financial return of the defendants.

You will see that one of the leaders in the activities of the Society, Dr. Mattingly, told the board of trustees on July 24, 1938, that if G. H. A. obtained its maximum enrolment it would result in the necessary exodus of a large part of the medical profession from the District of Columbia.

You will see that the defendant Woodward took the same view in an article in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, on Oct. 2, 1938, to which Mr. Lewin has already referred, and which, as you will recall, was written upon the specific authority of the board of trustees of the American Medical Association and under the direction of the defendants West and Fishbein.

After citing figures to show the proportion of the total population of Washington which G. H. A. might seek to withdraw from private practice in medicine, Dr. Woodward wrote that the effect of such withdrawal might withdraw persons able to pay for medical service and would materially disturb medical practice in the District of Columbia.

We shall also show you that this same defendant, Woodward, sought to enlist the cooperation of the Maryland and Virginia medical societies in the fight against G. H. A., principally with the argument that the personal economic interests of the doctors

in those states were at stake. He called attention to the fact that members of societies in counties immediately adjacent to the District of Columbia have an active personal interest in the matter. He urged these societies to cooperate with the local society of the District of Columbia because "certainly there is every reason why you should do so, not only from the standpoint of national interest but from the standpoint of local interest." And lest the doctors in those states should not understand the question, he warned them "against the competition with independent medical practice which will be set up by this Federal subsidy of a lay organization to buy and sell medical service to patients" in those states.

You will see from the minutes themselves which we intend to offer in evidence that the minutes are even more full of this matter of economic self-interest. You will see that on several occasions members warned that the income of doctors would be far less "if this Federal proposition goes through." Another urged the Society to take up the cudgels against G. H. A. because "we should look to the future. These plans all threaten the coming generation of physicians in their income."

You will see that the defendant McGovern urged action by the Society because he looked upon, as he put it, this organization "as coming in and interfering" with his business, because he intended to be in private practice for twenty years or more and that he did not intend, if it could be avoided at all, to permit this organization to come in and interfere with his work and income.

Ladies and gentlemen of the jury, that evidence which I have just summarized will show the keystone of the conspiracy, the economic purpose of the defendants to destroy legitimate competition in the practice of medicine in the District of Columbia.

FEBRUARY 6, AFTERNOON

The proceedings were resumed at the expiration of the recess, at 1 o'clock p. m.

Opening Statement on Behalf of the Defendants by William E. Leahy

Mr. Leahy:—When in the recitation of those facts which brought forth this prosecution I fail to preface before each statement that "the evidence will show this" or "the testimony will show that," will you kindly believe me when I say that the facts which I state will be based on evidence and testimony. The repetition of that assertion I eliminate only for the sake of not duplicating, and in the preservation of time.

In order that you may know just what the Medical Society of the District of Columbia actually and truly is, how it is constituted, how it operates and what its structure is, let me briefly tell you its story.

One morning at the stated hour of 11 o'clock, in an old tavern, then called Tennison's, on Pennsylvania Avenue, in this city, near 14th Street, were sixteen men. They met to form a medical association in the District of Columbia. There were good names among those men. Some of these physicians, still bearing the same names, sit opposite you as defendants. There was a Warfield among them. Other names you will recognize—McWilliams, McMahon, Hutchinson; and back in that dim day in our nation's history they met to form a medical association of the District of Columbia, because the people of the District of Columbia were being imposed upon then by quacks and sharks.

Sixteen or 17 months later, to be exact, on the 16th day of February, 1819, this association, now a defendant in this cause, received its charter from the Congress of the United States. It was the first scientific society which the Congress of the United States ever chartered. It was twelfth on the list of medical associations which had been formed, some while our states were still colonies and others shortly after the finish of the American Revolution.

New Jersey had its medical association as early as 1766; and notwithstanding the ravages of war which had swept across the colony of Massachusetts, those medical men, those doctors of that colony, were still thoughtful enough of the public health of their people and the service which they could render them, that in 1781, even before the surrender of Cornwallis, Massachusetts had its medical society.

In 1799 Maryland formed its medical society. This Medical Society of the District of Columbia is the natural heir to that, because four of those men who sat in that group that morning were from the State of Maryland, four were from Virginia, two were from Massachusetts, three had been born and raised here in the district of Columbia. And the charter under which the Medical Society of the District of Columbia first floated bears upon its face the names of Henry Clay and James Monroe.

Since 1819 the Medical Society of the District of Columbia has functioned for the good of its people and in the service of mankind.

The old charter, a bit antique in its language, nevertheless contains in one of its clauses the answer to the statement made as one which the prosecution asks you to take as gospel truth, namely, that these doctors, in this matter of G. H. A., were acting solely as economic competitors. That charter contains, as I said, the answer to it when it said in one of its provisions, back in 1819—

"Nothing in this charter shall be construed to give the Medical Society of the District of Columbia the right to control prices for the services which its members give to those who are sick."

Since that day the ethics to which every doctor in the District of Columbia has conformed have said that open competition is the life of the medical profession just as it is the most desirable element for the patient.

Now, what has the Medical Society as it exists to do with reference to the association commonly known and called the American Medical Association? Perhaps if I just briefly outline to you the general structure now of the American Medical Association you will see how this group, our own medical men, our own physicians, our own folks, fit into this scheme of the American Medical Association.

AMERICAN MEDICAL ASSOCIATION

The American Medical Association was formed almost a hundred years ago, to be exact, in 1847. It is an incorporated association, just as the Medical Society of the District of Columbia is an incorporated association. And may I join with my friends of the prosecution in saying to you that each is a purely voluntary association. No doctor on earth is compelled to join. No one coerces, forces or compels him to enter into association with his fellow doctors except his own free will and his voluntary choice. There is not a doctor in the District of Columbia who is forced to take out membership in the Medical Society of the District of Columbia. If he does, he does it because he wishes so to do, because it is only human among professional men as it is among many groups, perhaps some of you, to be associated in some organization—the Elks, or the Knights of Columbus or the Masons or what not—because you may like the association of good men; and professional men like the association of professional men.

And so this purely voluntary association is, in turn, a constituent member of the other purely voluntary association, the American Medical Association.

The American Medical Association, formed as it was back in 1847, is patterned precisely on our form of government; and if our form of government is the noblest experiment of man for the government of his fellowmen, then there can be no attack made upon the assertion that the American Medical Association is the most truly democratic voluntary association in the world today. There is no other patterned like it. It is the most perfect professional association for the advancement of the science and art of medicine which was ever conceived, because it has copied its structure after our own Federal Constitution.

And may I disabuse your minds at the outset of this covert insinuation, if not open statement, made by the prosecution, that the American Medical Association is in business. You have heard counsel say—in fact, I think both counsel said in their opening statement—that two of these officers were paid employees of the Association; they conducted the business end of the Association.

The American Medical Association is not in business. The District of Columbia Medical Association is not in business; and by no stretch of the imagination or description of human speech can either or both be denominated business corporations.

Throughout the various states of the United States, divided, as you know, into counties, we find the first of those groups which constitute the American Medical Association—the county association of doctors. They are gathered together in an independent unit, just as voluntary as any association can be. Not a single doctor in any county is compelled to join his county association. His membership is the pure voluntary choice of his own mind, his own preference and his own desire. But that group of men who wish to associate themselves together for the advancement of the art and science of medicine and its practice under ethical standards for the benefit of mankind, is the unit which reaches down into your home and my home, with your physician and my physician who is going to practice medicine ethically and under honorable principles which have existed ever since old Hippocrates, 460 years before Christ, practiced medicine under the supremacy of a civilization which has never been equaled in the history of time, when Athens was in her prime.

Ever since 460 years before Christ doctors have adhered to those noble, those inspiring and those lofty ideals which have made their profession, next to those who practice the profession of God himself, the most priestly and the most God-like under heaven.

This county association is an absolutely independent unit. The American Medical Association has absolutely no control over who belongs to it, how they came to join it, how they are elected. It has nothing whatsoever to do with the affairs of it any more than our Federal Government has to do with the government of Montgomery County or of Prince George County in the State of Maryland.

In order to further carry out the similitude of this organization to our own national government, just as the counties are bound together to form states, so these county associations are bound together into a state organization, so that each state in the United States has its own state organization. The state organizations are called constituent members. The county organization is called a component member; and then these various state organizations are all bound together in the American Medical Association.

THE HOUSE OF DELEGATES

In order that the American Medical Association may have a clear, accurate, definite reflection of what the practice of medicine should and ought to be for the best interests of the people of the United States as a whole it is provided that the American Medical Association shall hold what they call a meeting of their House of Delegates at stated periods. The House of Delegates is a meeting of those doctors who have been elected by their own county associations and state associations, and they all get together just as Congress does. But instead of their being called Representatives and Senators, they are all delegates of the American Medical Association gathered together in a congress to discuss—what? The standards of the profession, the ethics of a doctor; what the profession should do for the best interests of the people!

That is the only concern of the American Medical Association. It is the only concern of the District of Columbia Medical Association.

The only difference between our own Medical Society of the District of Columbia and the Harris County, Texas, Medical Association which you have heard described is that the Harris County, Texas, Medical Association is one of these component units I spoke to you about. It is one of those local county associations. The District of Columbia, of course, not being subdivided, but in itself as an entirety, has its own association which takes care of the entire District of Columbia.

Each unit governs itself. The District Society has absolutely no control of what the Harris County Medical Society shall do; the only unity being that every man who is a member of the American Medical Association becomes a member of the American Medical Association if he joins his county association, because a county association is, in turn, a component member of the American Medical Association; and the only unity existing between the members as individual members of the American Medical Association is this, that if they desire to become members—and it depends exclusively and entirely upon their own desire—then to remain members they must conform to those standards of right practice in the public good which 110,000 doctors out of 160,000 or 170,000 doctors in the United States have fought to conform to; and if a majority is supposed to rule a profession about which you and I know nothing, about which none of us except the doctors can tell, then certainly if a thundering voice of 110,000 have spoken it ought to be, even by the prosecution, accorded the credit of at least honesty of purpose.

Now we come to the individual defendants. Perhaps I should not omit from the discussion our own Academy of Surgeons, but really it comes into the picture so little that if we said nothing about it you would not fail to understand the trend of the testimony. It is just an academy of surgeons who in turn have voluntarily grouped themselves together in order to see to it that the practice of surgery upon the public shall be governed by proper standards in the public interest.

Now we come to the individual defendants. I am not going to rename them all. You saw most of them yesterday as they stood up to be identified, when you ladies and gentlemen were being qualified to sit here as judges of the facts. They are all men who have been members of their own Medical Society of the District of Columbia and of the American Medical Association for many, many, many years. They have practiced medicine under those ethics and standards for so many years that but few of them could not be the father of most of you on this jury. Their own medical association ethics have guided the conduct of each and every one of them; and blazoned forth in

the very first section of the constitution of the American Medical Association is that the standard of the practice of medicine by doctors in these United States shall be guided by the principles of rendering service to humanity, and let what you get for it be second. The constitution will be read to you, and that has never been changed.

Something was said to you in the opening statement about the standards which we call ethics, and the imputation was made, which requires an answer, that we autocratically fixed those standards, and that if one does not conform to them, then the societies, from the top down to the component county societies, seek to destroy a person who fails so to conform.

The plain answer to that was given also, but perhaps you did not get it. There are approximately 60,000 doctors in the United States who do not conform to those standards. There are 60,000 doctors against whom the American Medical Association has never moved, and those doctors did nothing contrary to the public interest.

In the District of Columbia there are 2,000 doctors. Eight hundred and twenty-five belong to the District of Columbia Medical Society. There are then approximately 1,200 doctors in the District who do not belong. I do not think that even the prosecution can produce a theft or a murder or an assault and battery committed upon one of the doctors who does not belong to the Society. It goes back to what I told you it is—a purely voluntary association of honorable men, men who have worked their lives down to the point now where the sun is sinking, in the honorable practice of a profession which they thought should never be practiced by any man or group, no matter by what high-sounding name it may be called, whether it be by way of experimentation or accomplished fact, which practices or advocates the practice of that profession in a manner contrary to the best interests of the patient and the public good.

PRINCIPLES OF MEDICAL ETHICS

The American Medical Association has had that standard of ethics ever since it was organized. The American Medical Association had little to do with the formulation of these ethics. It was done for them years and years ago, as far back as 1803 when an English physician named Thomas Percival formulated the ethics of the medical profession for the College of Surgeons in the city of Manchester, England. Those ethics were formulated on the old oath of Hippocrates, and they have come down through the ages, through civilization dead and gone, through millions of people who have tried experiments like this G. H. A., and they have always proved the only safe standard under which medical care can be adequately distributed in safety to the public and the patient.

Let us briefly advert to Group Health Association, Inc. You have heard it called in the opening statement variously as a consumer cooperative—names you never heard of until about 1932, perhaps. You have heard the practice of medicine described as the "distribution of medical care"; and you will find that along about 1930, and particularly after the crash of 1929, among certain members of the public who thought that by some, as they thought, new experiment they could cure the ills of all humanity, there sprang up these various new notions of social philosophy, and they tagged them with a new name. Perhaps you have heard it. They are new ideologies but these new ideologies came into clash with the ordinary method under which you and I were born and lived, and they thought that in order to cure the social evils of which this country was suffering, and the world itself was suffering, they ought to destroy the old order entirely and start all over again.

There was no indication in this experiment of the Group Health Association just what would happen after they had destroyed the practice of medicine as it had progressed in this country ever since the early days. But that was not their objective. Their objective was to impose upon the medical profession of the District of Columbia this social economic experiment, and if the medical profession, who in all this world are the only ones who can judge whether medicine is being practiced properly or not—if the medical profession did not like it, they could lump it and get indicted.

This Group Health Association was not the spontaneous outburst of these employees of H. O. L. C. in the "low income brackets." They love to use those terms—"low income brackets," poor people who cannot afford the expense of illness and who suddenly find they are suffering with an illness which sends them to bankruptcy and breaks up their homes. It did not rise in that way. The Group Health Association, Inc., was one of the most carefully conceived schemes which has ever been put into operation. It did not rise in the Home Owners Loan Corporation at all, but it had risen under the

ORGANIZATION SECTION

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advice, counsel, inspiration, and instruction of certain groups who again styled themselves under a catch phrase—a "foundation" or a "fund."

The background of this alleged conspiracy was just rehearsed to you this morning. In that background the prosecution was careful to omit those experiments of a similar character to this which had been tried and found woefully wanting, when either the foundation or the fund which sponsored their inception and their experimentation withdrew funds which were necessary for them to continue to exist, or they simply died "a-borning."

They told you this morning that since 1890 the science or art of medicine as practiced in the United States had progressed more rapidly than in any other period of known time. Had the prosecution been fair it would have told you that those advancements in the practice of medicine were due to the efforts of the American Medical Association to prevent the destruction of that progress by the quack and the charlatan who advertised his wares in such language as Group Health Association advises to catch the public with the phrase—

"You can budget your sickness expenses. You can pay so much a month and get adequate medical care." You can pay so And you will find that the American Medical Association has been so constantly on the alert for the advancement of the science and art of medicine that today young doctors training to become the doctors of tomorrow no longer have to go to Vienna or Germany to practice and learn, but the doctors of Germany and Vienna come to the United States. Today medicine has been brought to the highest standard ever known in the history of the world; and the prosecution says they cannot deny that statement. Medicine and its practice has been under the control, direction, advice, instruction, and careful preservation by the American Medical Association and its constituent and component societies.

COOPERATIVE LEAGUE

I told you that this scheme was not one which spontaneously burst like the inspiration of some poet or musician, so that out of the brain of some one came this unusual plan. Back in 1919 a man named Edward A. Filene established what he called a Cooperative League up in Boston. In 1922 the name of that league was changed to the Twentieth Century Fund. Edward A. Filene's perhaps closest friend was John H. Fahey, chairman of the board of the Home Owners Loan Corporation. He was so close a friend that he is executor under Mr. Filene's will. Mr. Filene died in 1937.

The Twentieth Century Fund had a department which was called the Medical Economics Department. That fund was well financed. It had back of it 150,000 shares of Filene's store, which paid \$1 a year dividends. It had \$500,000 in good bonds and stocks. So that when the prosecution points you to the power of the American Medical Association and the power of the various constituent and component societies thereof, I ask your attention to the testimony as to the power behind Group Health Association.

TWENTIETH CENTURY FUND

That fund was a corporation. Its name, after 1922, was the Twentieth Century Fund. It was a hundred years ahead of you and me—or thought it was. It was engaged in the study and investigation into, and the recommendation for, various, as they said, forward-looking projects; so that the American Medical Association, which had the benefit of the experience of a hundred years, the District Medical Society which had the benefit of the knowledge, the training, the advice, the cooperation and association of its members since 1819—they were Tories, obstructionists, if they did not believe in what the Twentieth Century Fund proposed.

Now, was this Twentieth Century Fund, in the department of Medical Economics, composed of doctors who knew something about the practice of medicine? No. R. W. Rickard had charge of that. And then in the fall of 1936, to be exact, on the second and the 30th of October of that year, there seemed to have come into the Twentieth Century Fund a desire for renewed activity in the shape of its investigation into and recommendation for the practice of medicine in the United States.

There had been formed theretofore another corporation called the Health Economics Association. So the Twentieth Century Fund revamped the charter of that corporation and put Mr. Rickard in charge of Health Economics Association, Inc., as its executive vice president.

Then, at the same time, they organized another corporation and gave it another fancy name, calling it the Good Will Fund.

HEALTH ECONOMICS ASSOCIATION AND GOOD WILL FUND

Health Economics Association, Inc., and the Good Will Fund are godfather and godmother to Group Health Association, Inc., that we have been talking about, because in October Mr. Penniman, the name that you have heard mentioned heretofore, made what he thought was a brilliant and a sudden discovery hitherto unknown to mankind. He had come from outside the District of Columbia and was director of personnel with the Home Owners Loan Corporation—and it almost makes us here in Washington smile—because he suddenly discovered that Government clerks take sick leave. So he started to figure out what sick leave cost the Home Owners Loan Corporation. That is what he said. And he went before the board of the Home Owners Loan Corporation with the remarkable discovery that as to how much it would cost the Home Owners Loan Corporation on account of this sick leave. He figured out up to \$500,000. It should have developed into a hospital instead of an organization! But at all events he went to the board and asked the approval of the board for the organization of some group in Home Owners Loan Corporation in order that some members and employees of Home Owners Loan Corporation might be guaranteed good health by some kind of a plan under which, by payment of so much a month, they would get everything they needed in the shape of medical care.

Then, too, he found that as in all government departments there was an excellent thing, an emergency room. You find them in almost every office in the District of Columbia of any size, for the purpose of taking care of an employee who becomes ill on the job. If he needs emergency care there is a place where the employee needing that care may be taken.

So he also represented to the board that that business of taking care of the emergency room, and the nursing staff, and what not, in Home Owners Loan Corporation could all be swallowed up in this new theory—the Group Health Association. It is no more new than dozens of others which had fallen by the wayside, because economically, as the testimony will show, it is unsound; it cannot give adequate medical care; it interposes between the patient and the doctor the direction of a lay body who know nothing about the practice of medicine and will only hinder and throttle any doctor who is attempting to take care of his patients. It interferes with the free choice of physicians. You can see that, because the members take what is provided for them, to wit, the doctors on the staff.

At that time Penniman reported that he had studied somewhat and had sought the advice and counsel of someone of those who had given attention to this kind or sort of group, the "herd" practice of medicine. And of course it was the Twentieth Century Fund. They had been dabbling in theories for years. Rickard, a paid employee, had been heading up the department under Group Health and was now the executive secretary of Health Economics, and he gave for the benefit of the employees, as he thought, his knowledge and his experience.

Now, on the point of cooperation the testimony of the defense will be directly to the contrary, and will prove every word of what I say.

It is only fair to assume that if someone is going to organize a group of employees in order to obtain for those employees adequate medical care, so that an employee in case of illness shall receive proper treatment—it is only fair to assume that someone ought to be called into consultation who knows something about how to provide adequate medical care.

GROUP HEALTH ASSOCIATION, INC.

This concept of Group Health Association, starting as it did in October of 1936, never had room for one word of consultation, advice or instruction from a single medical doctor in the District of Columbia. This is the association that the prosecution said this Group Health Association desired to cooperate with; and the testimony will show that the Medical Association of the District of Columbia never heard of Group Health Association until the coming of an event which I will tell you about later. Group Health Association never asked any single doctor in the District Medical Society whether it was wise or unwise, efficient or inefficient, ethical or unethical, medically sound or unsound. The trouble with G. H. A., as I will show you when we come to the analysis of its whole structure, is that these men who headed it up were economic theorists. You can't sell medical service as you sell baked beans or a package of cigarettes over a counter. The practice of medicine has in it that intimate relationship between the patient and the doctor, the absolute confidence of the patient in his doctor, so that when the doctor comes in to make a diagnosis of the patient's illness, the patient

unhesitatingly gives to the doctor full and complete and most confidential information, knowing that it will never be disclosed, but upon which the doctor must act in arriving at an accurate diagnosis.

Therefore the body which now they say they wished to have assist them, the Medical Association of the District of Columbia, the testimony will show was never consulted in one single particular with reference to the formation of Group Health Association. The fact of the matter is—and is not this strange—the fact of the matter is that after they had been working on this thing for about two months they got out a beautiful little brochure which was all decorated up with pictures of pretty nurses, and the doctor standing over the patient at the bedside, and on the outside it said, "For confidential information. Not to be distributed to the public."

This is the organization that wanted to cooperate with the doctors.

The man whom Rickard got to assist was a doctor in Chicago who has been advertising in newspapers who headed up an organization that the Supreme Court of Illinois declared to be illegal and told him to quit doing it. That is Brochure No. 1. I don't think Group Health knows we got it, but we got it.

They were by this time working along so that they had this organization pretty well planned out on paper. Not one of us knew anything about it. The American Medical Association, the Harris County Medical Association, the College of Surgeons, the District Medical Society—they did not know anything more about this than you did before you heard about it yesterday and today.

They had this Army officer who, the prosecution told you, had agreed to head up this Group Health Association as its medical director and whom, he said, we persuaded to refuse to become medical director. Penniman, Zimmerman and others were down here for months keeping away from the Medical Association any knowledge whatsoever that they were going to spring this organization whose purpose and objective was aimed straight at the heart of the practice of medicine as it had been known for over a hundred years in this country.

We did not have a thing to do with either General Ireland's or Colonel Jones's refusal to take the job as Medical Director of that organization. How could we? We did not even know it existed. We did not even know it was in contemplation. Somebody must be mistaken, because the evidence which we have as to why General Ireland did not become Medical Director of that association is that he asked the Colonel to make a careful investigation of what sort of an association this was. Others had been trying this all over the United States. This was not new, this notion of group health. The report came back that it was an entering wedge into State-controlled medicine, and he said, "We dropped it like a hot potato."

That is why they did not get General Ireland or the Colonel as Medical Director.

BROCHURE NO. 2

When did we first learn about this association? Brochure No. 2 was distributed. It was a bit of a supplement and a correction and re-edition of Brochure No. 1. We did not get the pretty picture in No. 2; but some one in one of the Government departments handed that to Dr. Verbyck, and he was on one of the committees of the District of Columbia Medical Society, and there was found outright a scheme under which not merely the employees of H. O. L. C., but all of the employees of all of the Government departments in the District of Columbia were to be grouped together under this plan.

It is needless for the prosecution to read any statement made by Dr. McGovern or Dr. Macatee or any of the others, because as men and women of Washington we know that when you take out of the District of Columbia practically all of the Government employees, then you have about half the population, when you take their dependents. But here, suddenly and unknown to the Medical Society, was this scheme which had been ripened to the point of fruition, so that already it had been carefully blueprinted and the way all set to go.

The District Medical Society was not concerned about that. It was concerned about one statement which, in substance, was this:

"After the plan is ready to launch, then let us try to get the cooperation of the District Medical Society."

In other words, wait until we are ready to go; wait until we are all prepared, and then let us spring it on the Medical Society. If they will come along—fine! If they won't, they are going to take it anyway.

Group Health did not cooperate. When the Medical Society read that in their brochure they sat down and wrote a letter to Group Health and said:

"We notice that you want to cooperate. Won't you come and tell us what the scheme is in which you desire cooperation?" So Mr. Penniman, Mr. Zimmerman, Dr. Brown, a very estimable old gentleman who had been in charge of hospitals under the Veterans Bureau in the United States Government and who had become persuaded by the allurements of this Group Health Association, until his mind was disabused and he resigned a year later when he found it could not work—they all appeared at the District Medical Society. Up to that time the District Medical Society had never met—and when I say "Society," I mean the responsible members of its committee—had never met a single human being connected with Group Health Association. They had never been invited by anyone connected with Group Health Association to learn what it was all about, what they expected to do or how they expected to do it.

That was sometime in June, and it followed the meeting which the prosecution called your attention to this morning, of June 1, 1937.

And now I ask you to stop with me just a moment in order that I may disabuse your minds of the theory upon which the prosecution proceeds with reference to dates antedating June 1.

You were advised in the opening statement of the prosecution that this conspiracy began on January 1, 1937, and existed down to the finding date of the indictment, which was December 20, 1938. Why they fasten on January 1, 1937, no one knows except the one who drafted the indictment.

The fact about the matter is that the District Medical Society never knew Group Health was in the convolutions of the brain of Mr. Rickard or Mr. Penniman on January 1, 1937. Therefore when Group Health Association had filed its charter on February 24, 1937, the District Medical Society was no more concerned with Group Health than you and I are concerned now with something we know nothing about.

But the prosecution was careful to call attention to a resolution which had been adopted by the District Medical Society, counsel says, within an exceedingly short time after the charter of the Group Health Association had been filed over here across the street in the office of the Recorder of Deeds; the inference being that the resolution was adopted because the charter had just been filed.

In order, therefore, to answer that imputation and inference and to show the positive lack of any basis in fact for drawing it, let me tell you this about this section. You will probably hear quite a bit about it. The prosecution read certain portions of it to you. It is that Section 5 and prescribes that the members of the District Medical Society should not have professional relations with those who were engaged in the practice of their profession under contracts which had not yet been approved by the District Medical Society.

That resolution had absolutely nothing to do with G. H. A. The first reason, and one wholly sufficient, is because the District Medical Society itself did not know anything about Group Health when it adopted that resolution. I think the prosecution was fair enough to state, and in so stating hoped that its statement would take your mind away from the purpose of the statement, that it was another clinic toward which that particular resolution was aimed. It was. They knew it was aimed at an entirely different clinic. They knew that G. H. A. had not been even organized yet. It was aimed at a clinic which was practicing medicine unethically and which the District Medical Society thought ought not to be permitted to operate against the public interest.

The District Medical Society did not act arbitrarily. It did not simply reach up to high heaven and grasp this mighty power which it possesses and smother this clinic. Before they moved in regard to that resolution they sought the advice of two of the most eminent members of the bar of this court, two Nestors of the profession, Mr. H. Winship Wheatley being one, and the other was one of the best known members of the bar who will come to testify; and I am going to keep him for a little surprise.

Those two lawyers went over the situation which confronted the practice of medicine in the District of Columbia from the standpoint of ethics and more particularly with reference to this particular clinic, and they advised the Medical Society of the District of Columbia that what they should do was to adopt a resolution which would be applicable to every kind of clinic which sought to set itself up contrary to the public interest and prey upon the public under the guise of practicing medicine.

That resolution was adopted then.

But to give this trumped-up conspiracy notion, that the District Medical Society passed that resolution against G. H. A., they point to the deposit of the charter on February 24, and they say that early in March we passed this resolution. I presume the sun should have stood still because Group Health was organized.

ORGANIZATION SECTION

JOUR. A. M. A.
FEB. 15, 1941

The second piece of evidence which I wish to draw to your attention and of which a great point was made by the prosecution. You will recall that a great deal was said about the tremendous power which the American Medical Association had gained unto itself, and also the District Medical Association in the District of Columbia, and it was this tyrannical abuse of this wonderful power which they had attained that crashed down upon G. H. A.; and they pointed out as one of the evidences of the misuse or abuse of that power the relationship between the hospitals and the American Medical Association and the District of Columbia Medical Association, and the use of that relation in the deprivation of the right to practice either on the regular staff or the courtesy staff of the hospitals in the District of Columbia.

While I am on that point, let me briefly explain to you just what the relationship of the American Medical Association and its constituent and component association is with reference to hospitals.

RELATIONSHIP OF A. M. A. TO COUNTY SOCIETIES

As the prosecution stated to you, medicine today is at the highest peak of excellence, of purity and of honesty that the world has ever known. One of the essential adjuncts of the practice of medicine, one of the necessary implements today, is the hospital. The hospital could not continue to exist without the doctor, and it is supremely difficult for the doctor to exist without the hospital. But each hospital is separately owned, independently managed by its lay group or lay board of directors.

Hospitals maintain two staffs, the general and the courtesy. The general staff is composed of those doctors who are elected to the position by the board of directors of each hospital. The general staff is subject to the call of the hospital, so that if at 12 o'clock tonight an accident occurs and some special treatment is required by someone who has been injured, the hospital calls a member of that staff who has special experience for the proper care of the injury which that patient has sustained, and that doctor goes, day or night. There is no 5 o'clock limit on him. Day or night he goes, and if that man cannot pay, he gets the service nevertheless without pay, because those men are on the staff, that general staff of the hospital, for that purpose.

On the courtesy staff we have those doctors who are permitted the courtesy of coming into that hospital to treat their patients. Therefore there is a unity of interest between the profession and the hospital in this: to keep the standards of the hospital to the very highest peak, and therefore the American Medical Association has watched carefully the hospitals of the United States. They have examined them. Why? Because of any economic reason? The prosecution cannot produce one iota of evidence that the American Medical Association in the inspection of a hospital ever had any economic purpose in mind whatsoever. We never heard about this "economic" matter until about 1932. The American Medical Association has built up the standard of care which the patient receives in the hospitals of the United States to the highest point in the history of the world. And how is it done? By inspection and seeing to it that the patient is properly cared for, that the intern is properly trained, that the resident has a proper opportunity to receive instruction under the tutelage and guidance of the members of the general staff. Those men teach the young intern today because they know that the young intern of today will be taking their places tomorrow; and the sole and only interest of these men who serve without pay on those staffs in instructing those interns and residents is to maintain the high standard of medicine.

And this testimony will speak for itself in resentment against the imputation that it was a dollar bill in the pocket or an economic competitive reason which impelled them.

Is not the general public of the United States interested to know just what the consensus of the opinion of all the doctors of the United States is with reference to a hospital?

The testimony, therefore, will be directed for your instruction to this point against the attacks made by the prosecution upon it—that the American Medical Association has given to a hospital which measures up to the standards which due and proper care in the public interest require a grade by stating publicly in its Journal that this hospital has received a grade which entitles it, first, to conduct itself as a hospital, and then to train the young men of today to be the doctors and surgeons of tomorrow; and the public can rely upon that standard.

That was not done in order to grasp or attain power. It was done in the whole-hearted, sincere, honest, sacrificing purpose upon the part of the medical profession to see to it that you and I, if we go to a hospital, shall receive the proper care which we deserve.

I had almost forgotten this. In 1935, long before even Mr. Penniman made the sudden and inspirational discovery that H. O. L. C. had some of its employees sometimes ill—and I believe the prosecution stated that Mr. Penniman discovered that because he was looking over the loans which had been made at the Credit Union, and the Twentieth Century Fund was interested in the Credit Union—away back of that there comes into the picture the Twentieth Century Fund and the Health Economics Association and the Good Will Fund.

But to return to 1935. At the meeting of the House of Delegates in Cleveland in that year the House of Delegates passed a resolution which was to the effect that they thought it in the public interest if the members of the staffs of hospitals throughout the country should be members of the American Medical Association.

That was not adopted by the House of Delegates except as a subject of the advice and consideration of the Council of the American Medical Association. In other words, the House of Delegates said, in substance, to the Council, "Here is what we were thinking about. Think it over; look into it. See what there is to it."

That was in 1935. Surely that could not have been adopted in 1935 with any view of G. H. A.

What was behind that? The purpose behind the resolution was this, that if the members of the staffs of hospitals belong to the American Medical Association, and if any member of any one of those staffs did not live up to the proper standards of their own conduct or in the practice of their profession, if they were not alert to see that proper care was used, then the hospital would have not only its own method to throw off the list such a person who was out of step, but the American Medical Association itself would say, "Here, as a member of our association, conform to these standards, or we will recommend to this hospital that you cannot belong to its staff."

It was a method which the American Medical Association had adopted in order to keep the standard of care where it should be.

Now, let us return to June 1st. That is where we were some minutes ago—the Group Health Association in its relations with the District Medical Society.

Brown, Penniman and Zimmerman came to the District Medical Society in response to the request which was made, and there they met the executive committee. The executive committee is composed in great part, and was then, of some of these defendants. I do not think it will be necessary for us to put on any reputation testimony for them. They have lived lives of honor. They have lived sacrificing lives, and they have won a high position in the community. Perhaps never before in the history of this country have you seen men of their prominence hailed before a court of justice as defendants.

Those men met, Drs. Brown, Zimmerman and Penniman; and they said "In this brochure you state you want our cooperation. Won't you tell us, please, what kind of a scheme this is?"

They had examined it, they looked over its structure, and they found that on paper the thing was economically unsound; that it was not going to be operated in accordance with the public interest.

So they asked "How are you going to operate this? You claim you are going to have a clinic, you claim you are going to have a medical staff, you claim you are going to give all these medical services to all these people in the District of Columbia. Under your set-up you take care of a hundred thousand people. It takes money to take care of a hundred thousand people. It takes money to get x-ray machines, to equip a clinic, to employ nurses. Where is the money coming from? We will cooperate if we know that the thing is economically sound, that it is ethically conducted, and in accordance with the public interest, but tell us something of your scheme." Is that unreasonable?

They were told "It is none of your business. It is none of your business where our money is coming from and we won't tell you."

And the meeting broke up.

Then, Dr. McGovern some time later wrote again to Mr. Penniman, I believe it was, and said, "Won't you give us a copy of your contract? Won't you give us a copy of your by-laws under which you lay down and prescribe the services you are going to render? Won't you tell us something about yourself, so that if you want us to cooperate we can do so intelligently?"

The distinction between the two groups in this case, the District Medical Society and Group Health is this: The District Medical Society never hesitated at any time to disclose every purpose and reason which motivated or actuated its conduct.

Penniman would not write, would not answer. He called on the telephone.

And Dr. McGovern met him down in the Raleigh Hotel, thinking the two of them were going to sit down as you and I would, sit down at the table and discuss it.

When he got there Penniman had a witness, Zimmerman, and he said, "Tell us where you are going to get your money. Tell us how you are going to operate this group."

He said "It is no more of your business to ask us how we are going to get our money than for you to go up there and ask Mr. Garfinckel what his agreement is with the express company."

Wasn't it?

Now, this is the cooperation which the prosecution told you this morning and yesterday this Group Health wanted from the Medical Society.

Now, at just about this time there was brought to your attention the white-list. Perhaps you heard the words. You have them now.

And they said that about this time the American Medical Society in further pursuance of this terrible conspiracy had gotten together in their committee meetings, they had formulated a white-list, they had circulated it to its members, and even circulated it to the hospitals.

Now, let me explain the white-list—or, once again, they complain because Group Health Association was not on the white list.

How could it be? They didn't open up for three months. They were not in existence. How could it be on the list?

And yet they draw that to your attention as part and parcel of this conspiracy.

Now, what was this white-list?

I tell you that that resolution section 5 was aimed at another clinic.

The prosecution named half of it, the Crawford's.

It was the Pennhallow-Crawford's Clinic.

That was declared to be operating not in the public interest, and therefore the District Medical Society had told its members this, and it is just and reasonable: "How can we permit a member of our Society to deal with a man who we say is not practicing medicine ethically or in accordance with the public interest? If we allow our members to deal with that man, then later on when the public finds out that this has been done not in accordance with the public interest, then they will say 'Why did you let your members join? What kind of an association are you?' You approved the association because you let your members deal with them."

So the Medical Association then said "Before anyone of us deals with anybody under a contract where he is selling his services under a particular contract, let us see what kind of a contract that is. See whether or not he can perform those services. See whether he actually is giving proper medical care. Or, is he just hoodwinking the public under the contract?"

"If the contract is sound we will approve it. If it isn't sound we won't approve it."

And there are eight or ten groups in the City of Washington practicing medicine in accordance with the ethics of the District Medical Society, and not one of them disapproved. Right now.

And every single group in the District of Columbia that was practicing under what they call contract practice on the date the white-list was formulated is on the white-list.

Now, why do they call it a white-list?

The District Medical Society sent it to its members and said "Each and every one of these clinics now operating in the District of Columbia is approved by us."

There were no others in the District of Columbia operating. The prosecution says "But they didn't put G. H. A.'s name on there."

Well, how could they when it didn't open until November 1st. And this was early in July.

Now, then, later in July after this meeting with Dr. McGovern when they could get no information whatsoever from this cooperative group who were cooperating so magnificently, they met again down in the headquarters of Group Health Association; the District Medical Society trying to cooperate.

They went down there again and said "Will you give us some information as to how you are going to operate?"

No. Won't tell you.

How could we cooperate when they wouldn't tell us how they were going to operate?

And every doctor in that group, every doctor in the Medical Association of the District of Columbia, and every doctor in the United States of America knew that if that group were going to operate under the plan which they put out at that time, which was in 1937, it required money.

Every one of them knew that these dues which they brought up could not support the group. And what they wanted to prevent was this:

The solicitation of government employees under the promise that they were going to get adequate medical care, when those who were doing the soliciting knew that they could not provide the adequate medical care because they didn't have the funds.

Now, just at that time, just along while this was brewing and the pot was boiling, as I am telling you about now, this group came to the president of the District Medical Society, Dr. Neill.

He sits over there as defendant now. He could have had the job of Medical Director. He didn't take it. There he is (indicating).

Dr. Neill said to Mr. Childress—and Mr. Childress was the right-hand man of John H. Fahey, and a very close friend of Dr. Neill, who had operated on his family—"There is a new group being organized down here in H. O. L. C., and would you like to take the job as Medical Director?"

And Dr. Neill's answer was this:

"You are the judge whether this is fair. If it is economically sound, if it is legal, and if it is ethical, it is the job I am looking for."

But he never could find out anything about it.

And so later on they got Dr. Brown.

Now, the point is this: In reply to what was stated by the prosecution, the District Medical Society didn't ask Group Health Association, Group Health Association kept its organization secret and confidential until it had become entirely and completely formed and ready for action.

And then it assumed a haughty, arrogant attitude that "We are going to put this thing across whether you like it or not," and they assaulted and attacked the District Medical Society, first, by taking its president, if they could get him; next, by taking their second one of its members, Dr. Lee, another one of its members.

And, if this thing is so good, why did they have to come into the American Medical Association which had been moving along since 1819 without trouble from anybody, and start in to disrupt its membership, when there are 69,000 doctors in the United States from which they could draw, and there were 1,200 in the District of Columbia from whom they could draw.

The point is, and the testimony will show, that just as General Ireland stated, it was an entering wedge with the stage, as Mr. Kelleher has said this morning, national in scope, to destroy, disrupt, confuse, and then rebuild the practice of medicine, according to the ideas of these theorists.

I believe I was just discussing with you before the short recess the meeting which has been held at the headquarters of Group Health in connection with the projected cooperation between the two organizations to procure the end and purpose of what Group Health desires.

Suffice it to say that the conclusion of that meeting was simply this:

The refusal on the part of Group Health to disclose anything of its financial capacity or ability to function, and the statement by one member of the board of trustees for Group Health that it was very evident that the two could not get along, and they were going along, meaning Group Health, at all events, and if the District Medical Society desired to withhold its judgment with reference to what Group Health was doing, kindly do so until the District Medical Society saw what Group Health could do.

That was in the summer of 1937.

And at that time, with the knowledge on the part of any doctor, whether he were a member of the District Medical Society or not, that no organization like Group Health could possibly proceed to success without some financing of some character sufficient to warrant the character and type of service indicated in the brochure, the District Medical Society from then on had but one intention, and one purpose, in view, to see what the operation of Group Health was with respect to its functioning in the public interest.

Group Health refused to submit its contract to the Medical Society.

It demanded its cooperation without giving to the Medical Society any information whatsoever.

Then, subsequently, the reason for the refusal became apparent.

THE \$40,000 APPROPRIATION

The representations which I spoke to you about earlier, which Mr. Penniman gave to the board of H. O. L. C. with reference to the cost to that organization growing out of sick leave taken by its employees was made the basis for the appropriation from public monies of \$40,000.

I think that sum was mentioned or described as the paltry sum of \$40,000, by the prosecution; to guarantee the beginning only of Group Health Association.

In order to conceal the purpose of the misappropriation, Group Health in March had entered into a contract with H. O. L. C. under which it agreed to give medical and hospital services to the employees of H. O. L. C. for a period of two years, for \$20,000 a year.

Then, Group Health found itself in a financial situation where it couldn't finance the equipment for the clinic, just as Dr. McGovern had in his mind when he asked the question, "Where are you getting this money?"

And instead of paying this amount of money over two years in accordance with the contract, within six months every dollar of it had been paid to Group Health, in order to equip its clinic.

John H. Fahey, who was then a high officer in Health Economics Association, who was still a higher officer in the Twentieth Century Fund, was chairman of the board.

But never would Group Health Association disclose the fact that this misappropriation of public funds had been made in order to guarantee merely its beginning.

One step further, they utilized the facilities of Home Owners Loan Corporation to purchase equipment at government prices, a privilege which no organization has the right to exercise except the Government, and bought practically at cost the equipment which went into H. O. L. C.

Lawyers of H. O. L. C. were utilized to carefully instruct, formulate and supervise the structure and conduct of Group Health Association.

I say this in reply to the statement made by the prosecution that we might say that Group Health Association was connected with the Government in some way, but that in fact Group Health was an independent corporation entirely distinct from any governmental activity.

Why, the trustees of the Twentieth Century Fund had on their board four of the highest government officials we have today when this \$40,000 misappropriation went through.

John H. Fahey, was chairman of the board of H. O. L. C. The Solicitor General of the United States was on the board of the Twentieth Century Fund.

The Attorney General of the United States was on the board of the Twentieth Century Fund.

And one of the highest state officials was on the board of the Twentieth Century Fund.

We say that for you to judge whether this was a government attempt to destroy the Medical Society of the District of Columbia and the practice of medicine as it had been known for over a hundred years.

Now, then, that misappropriation came under the watchful eye of Congress, and also the Comptroller General of the United States, and, you will recall, counsel for the prosecution justified or attempted to, that \$40,000 transaction by saying that the Home Owners Loan Corporation was authorized to determine the character of its expenditures, regardless of any other law of the United States, and therefore, since that provision was contained within either an appropriation act or some other act of Congress, it had the right to take \$40,000 and start a grocery store or a meat market if it so chose.

When the chief counsel for H. O. L. C. was before the subcommittee of appropriations of the House on the 18th day of December, 1938, and Mr. Woodrum asked him the question:

"On what justification did you take these \$40,000?" He made the same answer counsel for the prosecution made to you, and Mr. Woodrum said "That is the first time since I have sat on the Committee of Appropriations in any Congress of the United States that I have heard a public official ever advance that sort of a reason for the misappropriation." And then added "It is the unanimous opinion of this committee the appropriation is illegal, and, hereafter, it shall not occur unless specifically authorized."

And when the matter was brought before the Comptroller General of the United States he answered the contention as made by counsel for the prosecution and supplied to Senator McKellar—or, perhaps it was to Pat McCarran—I believe it was,—he enclosed the documents which backed up the statement as made by the prosecution, and the Comptroller General said that from everything he had reviewed—and he had everything that was then in existence—that misappropriation was entirely illegal and contrary to the laws of the United States.

Now, counsel for the prosecution said this morning to you in his statement that he was going to prove to you that doctors don't care about the violation of the laws of the United States, they were just making this opposition on pure competitive reasons.

How much then from this testimony does it show G. H. A. cared about the law of the United States?

It was precisely, as the testimony will show, a determination to put this over legally or illegally.

Why do I say that?

In the 1936 annual report of the Twentieth Century Foundation or Fund, you heard about Rockefeller Foundation, and you have heard of another foundation this morning, but this is called fund.

They gave a report of what their activities in establishing groups and prepayment plans throughout the United States had been. And they made this significant statement in that report:

"In substance, we cannot establish this group practice in many of the states because it is forbidden by law, and therefore we have applied to the legislative bureau of Columbia University to find how we can get around the law."

And when Group Health first started it put out early in 1937 a series of by-laws or regulations, and as late as November 6, 1937, when the general counsel of Group Health Association was submitting to the board of the H. O. L. C., amendments to those by-laws for the approval of that board, he said the reason he was making the amendment was to improve the legal position of the Association. And that if they should be held to be an insurance company, then he thought the legal position of the company—of the association, was strengthened by this amendment.

That was in November 1937.

Now, much water had gone over the dam since they had refused to disclose to the District Medical Society anything at all about themselves, since they had refused to tell about the \$40,000, and at that time a fact which we for the defense were astounded and astonished the prosecution did not bring to your attention, the two chief prosecuting officers who represent the enforcement of the law in the District of Columbia, were investigating the legality of Group Health Association.

And at that time, in November, the District Medical Society had employed counsel to give them advice as to whether Group Health Association was legally doing business or not.

This we offer on the question as to whether the Medical Association of the District of Columbia was regardful of the laws of the United States and their own conduct with respect thereto, throughout this entire controversy.

At that time, therefore, when Group Health knew that its conduct was under the investigation of the Corporation Counsel of the District of Columbia, and the United States Attorney of the District of Columbia, whose office is right here in this building, it commenced a course of conduct which it never finished until May 2, 1938, and this is what counsel for the prosecution did not disclose to you.

Just as the Medical Society of the District had employed counsel to advise them with reference to Section 5, they employed counsel with reference to the general legal structure and method of doing business of G. H. A., in order that they might be advised as to whether they could cooperate, as to whether it was a legal institution or not, or as one which they had a right to protect themselves against assault made by it.

The reason why they employed counsel grew out of a conference which was had on the 2d day of November, 1937, in the city of Chicago.

At that time the District Medical Society sought the advice of older and wiser and more experienced heads and those who were in information nationally with reference to the practice of medicine in this country.

They went to Chicago and asked these terrible men, Dr. Woodward—I don't guess there is anyone on the jury old enough perhaps to remember when he was in charge of the Public Health Service of our own District of Columbia, but I had the honor of sitting under him when I was taking my law and post-graduate in Georgetown. He was then here in the District of Columbia. This man now sitting as the defendant. They asked Dr. West what he would do in this situation in the District of Columbia.

The sum total of that advice by these conspirators was "Go back home and employ legal counsel who can make an investigation of the organization and see what it is all about."

They came back home.

Counsel advised them that the Group Health Association was practicing medicine in violation of the healing and practice act in the District of Columbia.

Counsel also advised them that it was conducting an insurance plan without having obtained a license from the Insurance Commissioner of the District of Columbia.

With that advice the District Medical Society then presented briefs of counsel to the Corporation Counsel in the District of Columbia and to the United States Attorney.

And in December of that year the United States Attorney for the District of Columbia told Group Health that if it didn't stop doing business, he would stop it, that it was violating the law.

And the Insurance Commissioner of the District of Columbia told them that if they didn't stop, that he would stop them, and that they should take out a license as an insurance company.

That was in December.

Counsel then this morning pointed your attention to the exemplary conduct of Group Health Association, by coming into this court of its own free will and petitioning this court for advice as to its legal status.

Group Health Association, as this testimony will show, never came into this court until the United States Attorney and the Corporation Counsel drove it in.

And then they came in here on January 15th, and they set up under the corporate oath that the United States Attorney and the Insurance Commissioner of the District of Columbia had threatened to close them up and they wanted this Court to determine whether they could continue to do business or not.

And then the prosecution tells you this morning that Justice Bailey in the latter part of July, on the 27th, declared they were legally in business, and he gave his blessing to the transaction; and he never told you what happened.

Just as soon as they filed their petition in January, Group Health commenced new amendments.

They amended their charter again, that month; then they amended their by-laws again, on the second day of May, right while this petition was right in this courthouse, just before it was argued in June.

They took every single objection which counsel had placed before the United States Attorney and the Insurance Commissioner of the United States, and they changed their by-laws to meet those objections.

So that the Group Health which Justice Bailey determined was legally operating was no more like the Group Health which had been fighting the District Medical Society than the wolf is like Red Riding Hood.

That is the organization Justice Bailey passed upon.

And then, within four days, Thurman Arnold announced: "Now, we are going to indict every last one of you."

No opportunity given then for the District Medical Society to determine its attitude; showing that from the beginning—and I will bring you a few more instances which, the testimony will show, that this is not an arbitrary statement or a reckless one made,—from the very beginning Group Health was determined to go forward with this experiment against any opposition, by any means legal or illegal, and that it had behind it the prosecuting office of the Attorney General who was going to add its authority.

Thurman Arnold did, in this case, by public announcement within four days after Justice Bailey's decision.

The Corporation Counsel took up the question of the practice of insurance to the Court of Appeals.

Did Mr. Arnold take this end of it up? Oh, no.

The Court of Appeals has declared whether or not G. H. A. is now legally practicing is an open question in the District of Columbia.

Now, then, I told you that from the beginning Group Health was building evidence so that it might through the prosecuting officer stand before you and make just the statements that were made.

I told you that when Dr. McGovern way back in July met Mr. Penniman for what he thought to be a friendly chat over the luncheon table in the Raleigh Hotel, Mr. Penniman took a witness along.

When they went down the following month to the headquarters of Group Health Association to have their conference there were stenographers there taking everything down stenographically.

And then when you hear these incidents which are brought to your mind, I want you to get all the facts about it, so that when the testimony comes along you will understand.

You will recall that the prosecution stated that the means by which we proceeded to attack Group Health Association fell into three categories, and he classified them first, with reference to attacks made upon Group Health in order to prevent its getting doctors on its staff, or, if it got doctors on its staff, retaining them thereon; secondly, with reference to the right of a doctor to consult; and third, with reference to the hospitalization of patients of Group Health.

Now, let this be understood now, the District Medical Society never objected to a patient of Group Health being treated in

any hospital in the District of Columbia at any time for any disease or purpose.

The hospital objected only under certain circumstances, which I will detail to you in just a moment.

Group Health insisted not that the patient be entered in the hospital, but that its doctor also treat that patient in the hospital.

THE CASE OF THE TECHNICIAN WITH HEMORRHAGE

Now, you will recall that one instance which was brought to your attention was with reference to a young lady who was described to you as a technician within the clinic of Group Health Association, and who suffered a severe internal hemorrhage, and she fell swooning on the floor; and I thought that perhaps she would die before he got through telling us about it.

And then, the surgeon wasn't permitted to operate until he went through a long series of questions and investigation about his right to operate on her.

And you will recall, coming as a surprise, I asked if that was Miss Tew, and he said no, that was Miss Stuart. He was coming to Miss Tew later.

Miss Stuart never had an internal hemorrhage any more than you or I had.

She went to Garfield Hospital; she was operated on at Garfield Hospital by Dr. Schoenfeld.

She arrived in Garfield Hospital about ten o'clock. Her room had been assigned; she was prepared for the operation; she was operated on at 12 o'clock. There was no internal hemorrhage and if that is denied and she waives the privilege Dr. Schoenfeld will come in here and tell you that. The next instance was Miss Tew, and this we offer for the purpose of bringing to your attention the attitude of Group Health Association.

Just as I told you earlier, Group Health Association never sought the advice of a single doctor of the District Medical Society with reference to its formation, the character of its services, the cost of its services, whether it could be rendered or not for the benefit of the patient. Neither did it ever seek or make request of a single hospital for admission to privilege of a single doctor of H. O. L. C. until as the prosecutor said, "After we were ready to be launched."

They knew just as well as you and I do that the lights are burning here in the ceiling that before any doctor in this District of Columbia or any place else has the right to go into a hospital in order to treat a patient he must get the permission of the hospital; that is a reasonable provision, for this reason: No hospital could, in the public interest, or in the patient's interest, conduct itself by permitting every sort of a doctor,—one who has violated every standard of good practice—to come into its hospital. It could not possibly exist without the protective regulation known to every hospital throughout the United States, and I don't think I am exaggerating when I say the word; that a doctor is privileged but he has no right to practice. That question has been determined by this Court. He has that privilege; he has no right to it.

Then Dr. Selders, of whom you have heard quite a bit, didn't ask for the privilege; not a single member of the staff asked for the privilege, but this chap Penniman, the supervisor of personnel, a layman with no more knowledge of medicine than any one of us has here; Penniman, a layman, arrogantly rushed to the hospital and told them he wanted the privilege for his entire staff.

Now, it is customary for hospitals to make investigations into the character and the experience and ability of doctors who make application to practice in hospitals—a reasonable thing. The doctors made a reasonable investigation, or, rather the hospital made an investigation into Dr. Selders and, just again to show you how information is given to you, the prosecution says, "There was a man 45 years of age," and I know you thought—because I could see it in your eyes—there is a man who has been practicing his profession for 15 or 20 years—and the hospital denied him privileges.

The ink wasn't dry on the right of Dr. Selders to practice surgery when he joined the G. H. A. He just had come out of the Worcester General Hospital at Worcester, Massachusetts. All the operating he had ever done was under the supervision and direction of the staff of the Worcester Hospital; and he came down here and made an application to the hospitals of Washington to perform every kind of an operation except brain surgery. And, "We say the man should have been accorded that right because it is G. H. A.; and being employed by G. H. A. he had the right to do just that. We can take \$40,000 of public moneys; we can use it anyway we want; we can violate the law if we want to, because we are G. H. A."

Those doctors gave him a very careful examination, as they do every doctor, and they didn't think a man who had just come out as an intern of a hospital should have the right to

practice surgery of all kinds in the City of Washington, in its District hospitals.

Now I hope they won't try to tell us more about Dr. Selders. He resigned in 1938 from G. H. A.; Dr. Brown resigned just before that. I am not going into that at least at this time.

Now, then Dr. Selders, when this blank application was made by Penniman, had been given the customary privileges by the Garfield Hospital which were allowed to any doctor upon the assumption that having been licensed to practice in the District of Columbia, pending this period of investigation he could have certain limited privileges; those which did not involve operations so serious as to endanger human life. Those privileges expired. Dr. Selders knew they had expired; Columbia Hospital wrote him a letter and told him that the privileges had expired under the terms of the original grant, and that pending the determination of the legality of Group Health Association by this Court they said they should not extend privileges to him. In other words, at that time, in February 1938, Group Health in the judgment of the District Attorney and Corporation Counsel was operating contrary to law, and pending the determination of whether Group Health was operating in accordance with law, Columbia made that straightforward statement to Dr. Selders. In less than three weeks Dr. Selders had the presumption, the arrogance, with the full knowledge that he had no right to try surgery in the Garfield Hospital, to send a patient up there and said, "I am going to operate on her." Did that young lady go as any other young lady would to the hospital? No, two witnesses with her; a man, a member of G. H. A., and a lady, also from G. H. A. She was not taken out under the influence of morphine. This is what happened: She came in to the hospital; she was assigned to her room; the nurse started to get her ready for the operation. The doctor came in and upon inquiry he learned it was Dr. Selders who was going to operate. "Why," he said, "Dr. Selders, you know, has no privileges in this hospital. We have our entire staff." Selders knew that. Selders knew he had no right to come in there. And then she, together with her two witnesses, said, "No," making evidence so she could testify. She didn't have an acute appendicitis case. Selders said she had because all hospitals permitted doctors to operate in an emergency. Now, if Selders could make out she had appendicitis he could operate. So she got up and dressed and went out. She had the nurse in attendance in preparation for the operation, and the nurse administered to her some kind of a sedative. She got out to the taxicab, left, and got another doctor who operated on her in Columbia Hospital; an ordinary appendicitis case—no hemorrhage whatsoever. She could not take another doctor at Garfield because she had these two witnesses, and then the prosecution could not make that representation that she did. Now then, let us just say this in answer to the three categories in which the attack, so-called, has been classified by the prosecution. Let us take the question as to whether or not the District Medical Society made an unjustifiable attack upon Group Health Association to prevent their obtaining doctors on their staff. The answer is No. 1. In the District of Columbia alone there were 1,200 doctors, any one of whom they could have drawn. The second answer is this: As I told you, the District Medical Society is purely voluntary. You can join it or not, just as you please, provided you have the qualifications of a doctor. Now, when you join it, one of the conditions is that you live up to the rules and regulations of the Society which you have joined. If you join the Masons you have to live up to the Masons; if you join the Knights of Columbus you must live up to the Knights of Columbus; if you join the Elks you must live up to the Elks; you cannot violate its rules and expect to remain a member. A man cannot parade as a member of the Masonic order and violate all its rules and regulations. Scandiffio knew when he joined the Society of its rules and regulations. He ought to. They have been the same since 1819, almost. The American Medical Association ethics have been such since 1847, and Scandiffio knew he had no right to join G. H. A. until he first had his contract with G. H. A. approved, and so did Dr. Lee, because both Dr. Scandiffio and Dr. Lee were aware of the regulations.

Then what happened? Then the legal staff of Home Owners' Loan took the case in hand. Here was a chance to make more evidence, so they promptly advised Dr. Scandiffio to withdraw his resignation and make the District Society prefer charges against him, and that is precisely what Dr. Scandiffio did; and when Dr. Scandiffio came up to answer the charges he had a battery of lawyers, five of the high counsel of Home Owners' Loan Corporation, and they are the ones who built up this record he said he wanted to introduce for you to read.

If you have time to read it, if we don't all celebrate the Fourth of July sitting here, I want you to read the haughty arrogance of those five men who demanded the right for Scan-

diffio to be on their staff, and at the same time to remain a member of the association, whose rules and regulations he violated. That is to say, nothing should be done against Group Health. They talk of persuasion, and I am coming to that; yet when we use persuasion they condemn it as an act of conspiracy.

In other words, Group Health could employ whomsoever it wanted in violation of the rules of any organization, and if the organization said you have your choice: you can still be a member of the Medical Society but you cannot be on Group Health's staff too, he said "I will be both"; that is Scandiffio. And don't forget, at the time Scandiffio was being tried because he had taken employment from an organization which had refused to furnish any information whatsoever to the District of Columbia Medical Society, and concerning which the Medical Society could learn about only from what it could pick up here and there; at the very time Scandiffio was being tried it was the considered judgment of the two chief prosecuting officials of the District of Columbia that Group Health was violating the law; and yet it is an act of conspiracy, and in furtherance of a combination to violate the Sherman Act, because the District Medical Society refused to have it said of it that it would have a member on its staff which was operating or assisting in operating in an organization that was violating the law. That is Scandiffio.

Lee presented his resignation at the same time Scandiffio did but he didn't go so far as to follow the advice of counsel of H. O. L. C. and make a battle out of what ordinarily would be gentlemanly conduct, to wit, "If you don't like to remain with the organization, resign."

Now then, we get to the second phase, that is, the consultation. That goes back one time more to this section 5, which I spoke to you about.

You know it is difficult, quite, to comprehend the psychology of the prosecution in the presentation of its facts; what it is going to prove. They have told you in one breath that this Group Health Association was an experiment which would give adequate medical care at a cheaper price. Now don't forget, the only thing involved in this case is price, price, price. These men are engaged in an economic experiment. If they would only leave the practice of medicine alone there wouldn't be any difficulty, but in the assumption of the right not merely to make an economic experiment, but also the right to control medicine, they have clashed with an organization which over the centuries has learned how medicine ought to be practiced in the public interest, and it is the only group on earth who can determine that. Now, they say that this organization was equipped to render this service. If so, why did they need to consult with other doctors, members of the District Medical Society? They had 1,200 other doctors in the District to pick from. Why is the point of attack aimed at the District Medical Society? Because evidence is wanted. In other words, if they might collect enough of these circumstances here to present in a proposed speech as to what they are going to prove they can make it appear to you that the District of Columbia Medical Society was out to destroy Group Health Association, and the District Medical Society, representing 825 of 2,000 doctors, was going to do that. The fact of the matter is they were out to destroy the District Medical Society by this new experiment which if it succeeded as intended would do. In other words, if you take everybody who needs medicine away from the doctor, the doctor has got to stop his practice of medicine.

Now, the interesting question is going to arise, where is the patient going to go whom Group Health doesn't take care of? The result will be that the District Medical Society and all medical societies in the United States, having been destroyed in the confusion which results,—the opposition which they fear will no longer exist,—and then they can superimpose on the practice of medicine as it has been known this practice in accordance with their theory.

Now then, the theory of what was done with the hospitals is so closely related to what Group Health offers its members that let me very briefly go into this because I see my time is slipping; I know you must be very tired of listening to lawyers harangue.

I think you have heard it said so much by the prosecution about this being a consumer cooperative whereby those in the low income bracket were able by budgeting medical expenses to protect themselves against a cataclysm which might bankrupt them or so destroy the family finances that they would no longer economically go on.

Now let us see what Group Health is. You would think, would you not, that the association or group which has been pictured by the prosecution to you would be a group who needed medical care. That clinic was organized and equipped to function for those who need care, you would suppose. It was not. Before you go into Group Health you must pass a physical

examination. If you don't pass the physical, you don't get into Group Health. In other words, if you have some ailment; if you are a sick man, what becomes of this claim of medical care; you cannot get it.

Now suppose you happen to slip by the doctors' examination and sometime within the next thirty days or within three years you develop a disease that requires more than one treatment within two years. You need it; but if you get it you pay for it. In other words, the very ones who need the care don't get it. Who is going to take care of them? Dr. Brown answered that in the conference of June, 1937, up in the office of the Medical Society in the District of Columbia. They said, "What becomes of them?" "Oh," he said, "we will give those to you." Kind of him, wasn't it?

Now, number 1: I suppose the answer to that will be, "Oh, this is preventive as well as curative." Whether it is preventive or curative, nobody gets in unless he passes this examination.

THE LOW INCOME BRACKETS

Now, about the low income brackets, and I think you are going to hear a lot about someone in Arkansas and Missouri and Texas not getting proper care. Let me impress upon you one thing: this conspiracy involves the Medical Society of the District of Columbia only, and don't let your minds go wandering off down there to Arkansas and Texas; don't get confused about this background. The District of Columbia has never been wanting for doctors. There is a doctor for every three to four hundred people in the District; the Group had only a doctor for one in every eight or nine hundred. So all this talk about what happens in Arkansas, Missouri and Texas, whether it occurred in the wilds of the woolly West had nothing to do with the District of Columbia.

Is it for the low income people? Not at all. It is for anybody. Some of their high officials belonged to Group Health. The man who is able to pay for medical services got the same service as the poor charwoman who would have gotten it from any doctor in the District for nothing.

It isn't for the man who couldn't afford medicine because if you don't pay your dues within ten days you are out; that is within ten days after the first of the month. So at the very time you need the Group Health experiment most is the time you don't get it.

What becomes of the man who can't pay his dues? He falls back on the defendants; they take care of him. The thing was commercialized from the very outset. It was so very extensively commercialized that standing up against that little clause I quoted from the charter of the corporation of the Medical Society of the District of Columbia, which said that under no circumstances can this corporation control the prices at which services shall be rendered; and standing against the very first section of the constitution of the A. M. A. which said that the practice of medicine shall be for the good of humanity, the distinction is so obvious. They not only require the payment of dues but they—when they first started and until they found that was illegal too—they put on a check-off system, the system that labor unions use in the factories and mines, and the boss deducted from the employees' checks the amount of his dues; and they still retain in their by-laws after they have amended them so many times that the by-laws today resemble in no way the by-laws under which they began, they still say that in the event of dissolution of Group Health and the sale of its assets, equipment et cetera, everything which it may own, that the corporation shall have a first lien on any dividend which any member might get.

Now, what is the type of service which they render? They render the ordinary clinical services just as they said Dr. McGovern had made a report upon to the Medical Society after it was found that they could not render the services which they proposed to render at anything like what it cost to render such services. You had heard this morning that the cost of medicine had risen with the cost of equipment such as x-rays, and that is precisely what took place. They were compelled to do two things: first, cut down the service and then raise the price so that the character or type of services, and the cost of it today are in no wise what they were when they began, but the peculiar objection which is offered in reply to the argument of the prosecution to it that the staff of G. H. A., unhampered, unrestrained, and uninterfered with determined the type of medical care of the patient,—that is the point which they raised as you will recall—no longer exists, and never did, except in Group Health.

Dr. Brown was compelled to resign because having believed from a reading of the brochure of the conditions there described, and believing that if there was any way, shape or form whereby they could be remedied that he ought to try it, he did accept the position as Medical Director. He then found that his

efforts as a director were being thwarted and hindered by the board of trustees. Who is the board of trustees? Once again on the question of whether it is a government institution or not. H. O. L. C. has two men on the board. The amendment and by-laws must all be approved by the H. O. L. C. These trustees are laymen. The constitution and by-laws provide that on 15 days' notice they can change the character of service which is being rendered. In other words it violates that clause of the code of ethics of the medical profession which says that between the doctor and the patient there shall be no third person intervening.

Because the doctor alone knows how to care for the patient, and some layman should not come in and try to tell the doctor what should or should not be done.

Then again, for the same reason, it destroys the relationship which exists, the confidence between the patient and the member; but the answer to the prosecution of that this morning was that they preserved the freedom of choice because the member could go and employ another physician if he did not like the member of the staff of G. H. A.

Well, if they destroy this fee for service basis, which they discussed, and they destroy those who were practicing medicine, what becomes of those whom the G. H. A. can't or won't take care of?

I am not going to exhaust your patience or your time or wear you out with an analysis of G. H. A. Their by-laws, together with their amendments and the practices pursued by this Association to avoid the inevitable judgment that it was an illegal institution and illegally conducted business and the fact that it was an insurance company which was doing an insurance business without a license, will all be presented to you for your consideration and you will see how skilfully guided the G. H. A. was with the backing of the Health Economics and the good will to avoid a decision and determination which they expected to be true when they filed the amendments here in order to obtain Judge Bailey's decision.

I think the prosecution said to you that the Twentieth Century Fund, the Health Economics and the Good Will Fund had nothing to do with Group Health. I think the evidence already directed to your attention indicates the contrary; but you will find from the annual reports of the Twentieth Century Fund where the monies are, of thousands of dollars being donated to Group Health so that for a time Group Health was able to operate upon subsidized funds; and the Good Will Fund or the Health Economics Association sent down here a person who from August, 1938, had been taken from the Rural Electrification Association, and installed in offices at 1422 I or K Street, paid for by one of these funds, and his salary paid for by one of these funds for the ensuing year.

Yet, the very purpose for which Group Health was formed was what? Mark you, I am merely following the language of the prosecution: to supply to the employees of H. O. L. C. this adequate medical care at reduced cost, and when Group Health started out, it starts out with employees of H. O. L. C. in its membership, some 2,000, and then had 200. They have now gone out and tapped other Government departments to keep up this membership in it, and instead of giving these medical services to H. O. L. C., and under that representation they got the money, \$40,000, they are now doing practically nothing for the employees of H. O. L. C. and never took over the emergency rooms in H. O. L. C. They are obtaining new memberships from new ones whom they have gone after by solicitation and by advertising through their names.

HOSPITALIZATION

Now, I am going to comment briefly on the hospitals in the District of Columbia. Throughout this case you will find nothing which the American Medical Association, as an association, has done as a conspirator in this case. You will find nothing which the Harris County Medical Association has done, or any other association, including the Medical Association of the District of Columbia.

Counsel for the prosecution concedes to us the right of honest, fair persuasion; at least they give us the right to disagree.

We disagreed with Group Health on good grounds and for good reasons, and since the decision in Judge Bailey's instance there has not been any hospital committee in the Medical Association of the District of Columbia.

The only instance in which the hospitals have been approached at all was first by a letter of July 29, 1937. That was the letter in which the "white list," so-called, was sent to the hospitals, and not a member of the District Medical Society ever knew that list went to the hospitals because there was no authorization to send it to the hospitals; the authorization was merely to send it to the members of the Association itself.

But whether it was authorized or unauthorized there could have been nothing in the "white list" itself to complain about because of the absence of Group Health's name thereon because Group Health had not been yet organized.

Then we come to the resolution which was read to you verbatim by the prosecution sponsored by Dr. Willson.

That resolution was offered in a Society meeting, and the prosecution knows and knew when they represented it to you that that resolution was referred to a committee, and the only action taken on it was "Pass it on to a committee and let us see what it is all about."

Then what was the result of that resolution? There came out of that committee not the resolution which was read to you this morning but the resolution under date of December 1st, 1937, which was sent to the hospitals on the second day of December, 1937, and that resolution so stated squarely "For educational purposes alone, we brought your attention to the recommendation that the members of the staffs of hospitals be members of the American Medical Association." That was the resolution.

Now, they impugn that resolution, saying to you that it does not mean what these honorable gentlemen said when they wrote it, but behind it is some infamous purpose which never originated in the mind of anyone except for purposes of prosecution.

With reference to the hospitals in the District of Columbia and the American Medical Association letter or response thereto, which was called to your attention this morning, occurring in August, 1937, and more particularly, I think from either Columbia or Georgetown, may I say this: there again in August, 1937, Group Health had not even started to function.

But, the point of the prosecution seems to be that once somebody had the thought started, then everybody else must bow down and do nothing about it. He could not even use persuasion, which is given to anybody under the Constitution to use, but everybody must bow down before the G. H. A.

Now, it may surprise the prosecution to know that Dr. Cutter of the American Medical Association who wrote the letter never had heard of Group Health Association in his life when he wrote it.

That was one of the ordinary, orderly routines of investigation which was made by the American Medical Association and

which has been made year in and year out over an extended period of time, and it was at that time suggested to the Washington hospitals that if they could they should have on their staff members of the American Medical Association, just as Group Health here tried to get members of its staff on the staffs of hospitals, but the right which we tried to exercise is urged upon you as an act of conspiracy, a pressure, a tyranny, and a destruction.

Therefore what becomes of the point that any attack was made upon Group Health, in so far as the hospitals are concerned, when we consider that at that time under the studied and deliberate judgment of everyone who had looked over Group Health itself, it was operating contrary to law and was an illegal institution, and they can't point to a thing following that declaration. I think he told you eight hospitals have members of Group Health upon their staffs since the declaration by Justice Bailey.

You will see from the testimony that Group Health, the Group Health of 1938, was an entirely different institution from 1937.

Now, then, I think, ladies and gentlemen, I won't take up any more of your time and I won't talk any further, but these briefly are the headings and the outlines of what this testimony will show, probably extending over quite a time because of evidence which is documentary, but you will find furthermore that every explanation which is made is supported, in so far as the District Medical Society is concerned, by its own documentary proof.

They have objected to the theory of it. Yes. That they will testify in their objection. Yes.

Up to that point they expressed that objection in a way in which they were motivated and actuated only and solely for the benefit of the profession. In the practice of medicine where any assault was made upon them they were compelled to meet it because they knew the head and the front of the institution directing that assault was doing so for the purpose of destroying it in order that the experiment, the future of which they confessed themselves this morning, they knew not about whether it was good or bad, they could not tell you, but let the experiment go on, and then some time later there will be confusion and destruction.

(To be continued)

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—H. R. 2112 has been reported to the House, without amendment, proposing to authorize the Secretary of the Navy to appoint in time of war or national emergency declared by the President to exist, for temporary service, such acting assistant surgeons as the exigencies of the service may require. H. R. 2278 has been reported to the House, without amendment, proposing to authorize the Secretary of War to detail not to exceed 2 per cent of the enlisted men of the regular army as students at such technical, professional and other educational institutions, or as students, observers or investigators at such industrial plants, hospitals and other places as shall be best suited to enable such enlisted men to acquire a knowledge of or experience in the specialties in which it is deemed necessary that such enlisted men shall perfect themselves.

Bills Introduced.—S. 666, introduced by Senator Walsh, Massachusetts, proposes to establish in the Department of Labor a Bureau for the Welfare of the Deaf to (a) collect, tabulate and make public statistics pertaining to the deaf, their employment and their welfare; (b) ascertain what fields of employment are available to the deaf, and to endeavor to create new such fields of employment; (c) acquaint employers in private industry with the special capabilities of the deaf and to encourage the employment of the deaf on an equal basis with the hearing; (d) cooperate with the heads of the various departments of the government and with the Civil Service Commission and states and political subdivisions thereof in expanding the opportunity for the employment of the deaf in public service, and (e) cooperate with any public or private agency in the vocational rehabilitation of the deaf. S. 697, introduced by Senator Clark, Missouri, proposes to amend the section of the Selective Training and Service Act of 1940 relating to the deferment of college students so as to provide that any person who, during the year 1940, entered on attendance for the academic year 1940-1941 (1) at any college

or university which grants a degree in arts or science to pursue a course of instruction satisfactory completion of which is prescribed by such college or university as a prerequisite to either of such degrees; or (2) at any such university to pursue a course of instruction to the pursuit of which a degree in arts or science is prescribed by such university as a prerequisite shall, while pursuing such course of instruction at such college or university, be deferred from induction under the act (a) until the end of such academic year, or until July 1, 1941, whichever occurs first, if he is ineligible, under the established rules and regulations of such college or university, to complete such course of instruction before Feb. 10, 1942, or (b) until he completes such course of instruction, or until Feb. 10, 1942, whichever occurs first, if he is eligible, under the rules and regulations of such college or university, to complete such course of instruction before Feb. 10, 1942. H. R. 2099, introduced by Representative Tolan, California, proposes to amend the Social Security Act so as to provide grants to the states for needy disabled adults incapable of self support. H. R. 2817, introduced by Representative Knutson, Minnesota, proposes to exempt from the taxes imposed by the Social Security Act service performed in the employ of a voluntary employees' beneficiary association providing for the payment of life, sick, accident or other benefits or the furnishing of medical care or hospitalization, to members of such association or their dependents, if no part of its net earnings inures to the benefit of any private shareholder or individual, other than through such payments and if 75 per cent or more of the income consists of amounts collected from members and/or contributed by the employer for the sole purpose of making such payments and meeting expenses. H. R. 2858, introduced by Representative Allen, Louisiana, provides that where, as a result of sound medical evidence and/or examination, it has been established by the United States Veterans' Administration that a veteran's service-connected disability, resulting from his service in the armed forces of the United States during any war, has

caused a severe industrial inadaptability, then in that case the veteran shall be considered as permanently and totally disabled and shall receive a rating of permanent and total for compensation purposes and for any other benefits to which such rating might entitle him, regardless of any rating which any rating schedule might designate for such specific disability or disabilities. H. R. 2860, introduced by Representative Allen, Louisiana, proposes to authorize a federal appropriation of \$450,000 to construct an addition to the existing United States Veterans' Administration Facility at Alexandria, La., for the care and treatment of general medical, surgical and neuropsychiatric disabilities. H. R. 2945, introduced by Representative Coffee, Washington, proposes to amend the Longshoremen's and Harbor Workers' Compensation Act to extend its benefits to boommen and raftmen employed in lumbering operations on navigable waters of the United States. H. R. 2987, introduced by Representative Kilday, Texas, proposes to define the term employee as used in the Social Security Act to exclude an officer of a corporation exempt from income tax under the provisions of section 101 of the Internal Revenue Code who does not receive compensation for his services. H. R. 3010, introduced by Representative Beckworth, Texas, proposes to authorize for each fiscal year beginning with the fiscal year ending June 30, 1941 a federal appropriation sufficient to provide grants for the states for assistance to needy incapacitated adults who are 18 years of age or more and are permanently incapable of self support by reason of a physical disability or defect, other than mental. H. R. 3100, introduced by Representative Walter, Pennsylvania, provides that in any case in which proof of age or of place of birth or proof of a death is required in the administration of any law of the United States the agency administering such law shall accept as proof of age, or of place of birth, or of proof of a death, any document purporting to show such fact when it is duly certified as a correct copy of an original document on file with the official custodian of records where the birth or death occurred if such original document has met all the requirements of the laws of the state where such birth or death occurred.

STATE MEDICAL LEGISLATION

Arizona

Bills Introduced.—H. 1 proposes to create a state department of health to succeed to and be vested with the duties and powers heretofore by law vested in and imposed on the state board of health, the superintendent of public health, the state registrar of vital statistics, the supervisor of public health nursing, the state laboratory, the director of the state laboratory, the board of regents of the University of Arizona with respect to the state laboratory and the director thereof, and the state dairy commissioner. The department is to be divided into the following divisions and bureaus: division of local health administration, division of maternal and child health, division of vital statistics, division of sanitary engineering, state laboratory and division of public health nursing. The department is to be headed by a superintendent of public health, who is to be appointed by the state board of health. The state board of health, which is to advise the superintendent in the performance of his duties and is to formulate general policies affecting the public health, is to consist of five members, appointed by the governor for four year terms. H. 9 proposes to require every physician or other person engaged in the antepartum care of a pregnant woman, or attending a pregnant woman at the time of delivery, to obtain a specimen of her blood not less than ten days after the first professional visit and to submit the specimen to an approved laboratory for a standard laboratory test for syphilis. S. 40 proposes to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of the certificate of a licensed practitioner of medicine and surgery that (1) the party has been subjected to a thorough physical examination, tuberculin test and adequate laboratory tests to determine the presence of gonorrhea or syphilis and (2) the party is free from infectious, contagious and venereal disease. H. 43 proposes to make it unlawful for any hospital exempted from taxation, in whole or in part, to refuse to render promptly the necessary

medical treatment to any person in case of accident or injury, or in case of any diseased, infected or abnormal physical condition which is likely to cause death or severe injury.

Arkansas

Bills Introduced.—S. 60 proposes to enact a new optometry practice act. The bill states that "The practice of Optometry is hereby declared to be a learned profession, and the same rights, powers and duties are hereby declared to attach thereto as attach to other learned professions. The profession and the practice of Optometry is hereby defined to be the employment of any method or means other than the use of drugs, medicine or surgery for the analysis of any optical defect, deficiency or deformity, visual or muscular anomaly of the visual functions, or the use of scientific instruments to train the visual system." The bill proposes to prohibit certain types of advertising and practices in connection with the practice of optometry and is so worded as to include licensed physicians and surgeons within the prohibitions. However, a section of the bill provides that nothing in the act, with the exception of the prohibited advertising and practices referred to, shall apply to physicians and surgeons. H. 84 proposes so to amend the basic science act as to exempt chiropractors from its provisions. H. 143 proposes to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of a physician's certificate that the party is free from venereal disease and is not idiotic, feebleminded, imbecilic, epileptic or insane as nearly as can be determined by a thorough physical examination and such standard microscopic and serologic tests as are necessary for the discovery of venereal disease. H. 151 proposes that the basic science act "shall not apply to any person who was a resident practitioner of Chiropractic on January 15, 1940, and to whom a license to practice chiropractic was issued by the State Board of Chiropractic Examiners prior to said date." The bill also proposes that it shall be unlawful for any person engaged in the practice of chiropractic to advertise in any manner. S. 73 proposes to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of a certificate of a licensed physician stating that the party is free from any venereal disease and is not idiotic, feebleminded, imbecilic, epileptic or insane as nearly as can be determined by a thorough physical examination and by standard microscopic and serologic tests. S. 81 proposes to require every physician attending a pregnant woman for conditions relating to pregnancy during gestation or at delivery, to take or cause to be taken a sample of her blood at the time of the first examination and to submit the sample to an approved laboratory for a standard serologic test for syphilis.

California

Bills Introduced.—A. 350, to amend the law permitting the court in any civil or criminal proceeding to appoint one or more expert witnesses to investigate and testify concerning matters on which the court deems expert evidence advisable, proposes to give this right also to juvenile courts. A. 455 proposes to exempt from execution or attachment the tools or implements of a chiropodist. A. 563, to amend the laws relating to nonprofit corporations, proposes to permit a nonprofit corporation to be formed for rendering services "including professional services of persons licensed under any chapter of the Business and Professions Code." The bill proposes that a nonprofit corporation formed for the purpose of defraying the cost of professional services may have three or more classes of members and must offer membership therein and an opportunity to render professional services on a uniform basis to all regularly licensed members of the particular profession or professions concerned. A. 596 proposes to repeal Statutes, 1937, ch. 804, regulating the conduct of clinical laboratories and to enact in its place a new chapter in division 2 of the Business and Professions Code, to be entitled "Clinical Laboratory Technology." This bill proposes to make it unlawful for any person to make any test or examination in a clinical laboratory which requires the application of one or more of the fundamental sciences, such as bacteriology, biochemistry, serology and parasitology, unless the person is either a licensed physician and surgeon, is a licensed clinical laboratory technician or is a licensed clinical technologist. The bill proposes to set up certain educational standards with

respect to persons desiring to be clinical laboratory technologists, defined by the bill as persons engaging in the work and direction of clinical laboratories. The bill also sets up certain standards for a person desiring to act as a clinical laboratory technician, defined as any person other than a physician and surgeon who, under the direction of a clinical laboratory technologist or a physician and surgeon, performs the technical procedure called for in a clinical laboratory. The bill defines clinical laboratory as any place, establishment or institution organized and operated for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods for the purpose of obtaining scientific data which may be used as an aid to ascertain the presence, progress and source of disease. S. 302 proposes that any action by or on behalf of a minor for personal injuries sustained prior to or in the course of his birth may be brought within four years from the date of injury and that the time such minor is under any disability shall not be excluded in computing the time limited for the commencement of the action. A. 503, to amend the medical practice act, proposes that in grading the examination questions of an applicant for a license to practice medicine a credit of 1 per cent must be granted on the applicant's general average for each year of actual licensed practice in the United States and Canada, which credit shall not exceed 10 points on such general average. A. 562 proposes that any nonprofit membership corporation operating a medical and surgical service plan with participation available to all duly licensed doctors of medicine may make, enter into and perform medical and surgical service contracts and may contract with any agency or instrumentality of the United States in aid or furtherance of such contracts, and may accept, receive and administer, in trust, funds directly or indirectly made available by any agency or instrumentality of the United States. Any such corporation in the administration and trust of such funds is to be deemed an instrumentality of the United States. A. 723 proposes to exempt from tax the gross receipts from sales of and the storage, use or other consumption in this state of medicines and drugs. A. 1073, to amend the laws relating to the adulteration, mislabeling, misbranding, advertising and sale of drugs and devices, proposes that the term "drugs" shall include products sold for their vitamin potency when medicinal claims are made for such products. The bill also proposes that a drug shall be deemed to be misbranded if it does not state on its label the kind and quantity or proportion of any iodides, phenol, ephedrine, epinephrine or amphetamine. The bill also proposes that a drug shall be deemed to be misbranded if it contains any quantity of thyroid unless it is sold on a written prescription of a licensed physician, dentist or veterinarian. S. 645 proposes to provide a system of compulsory health insurance to be administered by the agency administering the state unemployment insurance system. S. 1065 proposes to make it the duty of any physician, midwife, nurse, maternity home or hospital or any person attending or assisting in any way at childbirth to treat both cycs of the infant within two hours after birth with a "prophylactic efficient" treatment.

Connecticut

Bills Introduced.—S. 34 proposes to enact a separate massage practice act and to create a board of examiners in massage to examine and license applicants for licenses to practice massage. The bill proposes to define massage as "any process or action of conjoint motion and pressure applied by hand, such as rubbing, stroking, kneading, tapping or other similar manipulation, with or without the application of creams, lotions or liniments or the use of hand vibrators or rollers to any part of the human body for the purpose of relieving pains, aches, stiffness or soreness of muscles or for the purpose of inducing blood circulation or reducing conditions of obesity, or for any other remedial purpose, including the use of any and all other manual means such as physical exercises for the conditioning of the human body." H. 77 proposes to establish a Council on Mental Health to direct and coordinate the activities of institutions concerned with the public care of the mentally sick, mentally defective, epileptic and inebriate and to study the needs of the state and to initiate and direct programs of prevention and follow-up activities outside the institutions. H. 32 proposes to appropriate \$50,000 to the department of health to be used for the study of cancer and the maintenance of diagnostic and treatment clinics for the

biennium ending June 30, 1943. H. 79 proposes to create a Commission on the Care of the Chronically Sick and Infirm. The commission is to study the extent of the needs for the care of the chronically ill and formulate policies with respect to the type of disease and the persons for whom such care shall be provided. H. 126, to amend the laws regulating the practice of the healing arts, proposes, among other things, (1) certain additional causes for the revocation or suspension of licenses; (2) that disciplinary proceedings be instituted by filing written charges by the state department of health with the examining board representing the branch of the healing art practiced by the practitioner; (3) that disciplinary action may be had by a majority vote of the affected examining board, rather than by unanimous vote as the law now provides; (4) that applicants for licenses to practice any form of the healing art must be citizens of the United States; and (5) that applicants for licenses to practice any form of the healing art before beginning the study of medicine must have completed a one year's college course, including courses in chemistry, physics and general biology, and after July 1, 1947 must have completed a two years' college course. S. 35 proposes to create a state department of mental health to consist of a commissioner of mental health and a mental health council. The commissioner is to be given the power to inspect state institutions for the mentally sick, mentally defective and epileptic and to coordinate the activities of such institutions. The mental health council is to establish districts from which mentally ill persons in need of state hospital care can be admitted and shall establish standards for, investigate, license and inspect private institutions for the care and treatment of the mentally sick, mentally defective and epileptic. S. 79 proposes to transfer the bureau of occupational diseases from the department of health to the department of labor and factory inspection and to designate it as the division of industrial health. The bill proposes to require the division of industrial health to investigate industrial establishments and to make tests for the purpose of determining whether the health of the employees is endangered by any conditions of employment. The chief of the division is to prescribe and recommend means for eliminating, obviating or reducing industrial health hazards. The division is also required to publish from time to time the threshold limits, or limits of tolerance, for injurious dusts, mists, fumes, vapors, gases and materials in work places. The bill also requires every physician who has knowledge of any person whom he believes to be suffering from occupational poisoning or occupational disease to report the facts to the division of industrial health. S. 37, to amend the laws regulating the operation of institutions for the treatment of detention of insane persons or of persons suffering from other abnormal mental or nervous conditions, proposes to vest the licensing of such institutions in the state department of mental health. H. 76, to amend the law which prohibits a hospital receiving a state appropriation from receiving more than \$8 a week for the care of any 1 patient whose expenses are paid by the state or any subdivision thereof proposes that "if the total of the expenses incurred by the State for hospital care during any fiscal period at said rate of eight dollars a week plus the annual appropriation of the General Assembly to such hospital shall not be sufficient to pay such hospital for such care at the rate of five dollars per day for each such patient, such hospital shall be paid the deficiency by the State." H. 127, to amend the law relating to the qualifications of the commissioner of health, proposes to require the commissioner not only to be a graduate of an acceptable medical college and to have had at least five years of experience in actual practice but also to have had a minimum of one year of university graduate instruction in public health as evidenced by a certificate of graduation or a degree in public health. H. 82, to amend the law regulating the operation of institutions for the treatment or detention of the insane or persons suffering from other abnormal nervous or mental conditions, proposes, apparently, to vest the administration of the law in the State Council on Mental Health. H. 128, to amend the law relating to the tuberculosis commission, proposes that the commission shall cause instruction of the public in rules of living essential to the suppression of tuberculosis and shall provide and maintain within or apart from the state sanatorium facilities personnel for the detection of tuberculosis in its early stages, and for the rehabilitation of the

tuberculous. S. 231 and H. 367 propose to appropriate \$50,000 to the department of health for the study of cancer and the maintenance of diagnostic and treatment clinics for the biennium ending June 30, 1943. H. 184 proposes to enact a separate physiotherapy practice act and to create an independent board of examiners for physiotherapy to examine and license applicants for licenses to practice as physiotherapy technicians. The bill proposes that "The practice of physiotherapy technique is defined as (a) The performing, for compensation received or expected under the direction of a licensed physician, or any professional service requiring special education, knowledge and skill in the physiotherapy treatment of injury, disease or deformity; (b) Physiotherapy is understood to be the treatment of patients by physical means including the various modalities of electricity; light; heat; massage; exercise and water." S. 65 proposes that any person charged with driving a motor vehicle while intoxicated may demand a blood or urinal test or both to determine the amount of alcohol in his blood system and that the results of such tests shall be admissible as evidence at the trial of the accused person. H. 732 proposes that \$2.50 of the fee paid by each motor vehicle operator shall be placed in a fund to be used to defray the expenses of hospitalization and physicians' fees in cases of injuries caused by motor vehicle accidents.

Delaware

Bills Introduced.—H. Res. 1 proposes to abolish the office of coroner in the respective counties. H. 6 proposes to establish the office of medical examiner for the state of Delaware to assume the functions, among other things, of the coroner's physician of each county. The medical examiner, the bill proposes, must be a licensed physician and a skilled pathologist, microscopist and toxicologist. The bill proposes that whenever in the state any person shall die from criminal violence, by casualty, by suicide, suddenly when in apparent health or when unattended by a licensed physician, the medical examiner shall be notified by the person or persons having knowledge of the facts. Immediately on receipt of such notification the medical examiner or a deputy or assistant must take charge of the dead body and investigate the essential facts concerning the circumstances of death. If the cause of death is established beyond doubt, the medical examiner shall so report to the attorney general; but if an autopsy is necessary the medical examiner shall perform it and forward a detailed description of his findings to the attorney general.

Georgia

Bills Introduced.—S. 55, to amend the law authorizing the operation of nonprofit hospital service plan corporations, proposes that (1) all plans offered by such corporations must afford the subscriber and his dependents the right to select the services of any approved hospital in the state and (2) each such corporation shall be authorized to accept applications for memberships and to issue contracts only to persons residing in counties in which the hospital service plan of such corporation shall have been approved by the county medical society of that county. H. 12 and S. 10 propose to create a state hospital authority to consist of the governor, the state auditor and the attorney general. The state hospital authority is to succeed to and be vested with all the powers, duties, obligations and liabilities vested in or imposed on the state hospital authority created by the act of Feb. 1, 1939. H. 122, to amend the workmen's compensation act, proposes to make compensable disability arising from any one of some twenty-five stated occupational diseases. H. 201, to amend the chiropractic practice act, proposes (1) that "Chiropractors who have complied with the provisions of this Chapter shall have the right to adjust patients according to specific chiropractic methods, shall have the right to use air, light, heat, water and exercise in the treatment of disease, and shall observe State, municipal and public health regulations, sign death and health certificates, reporting to the proper health officers the same as other practitioners. Chiropractors shall not prescribe or administer medicine to patients, perform surgery, nor practice obstetrics or osteopathy;" (2) to define chiropractic to be "a drugless health science, which teaches the art and philosophy of locating and correcting, by scientific methods, any interference to nerve transmission, including hygienic, sanitary, dietary and other natural and physical measures which promote

health and prevent disease. It also includes the use of electricity, X-ray photograph, but the X-ray shall not be used for therapeutical purposes," and (3) to require chiropractors to renew their licenses annually and to condition such renewal on the presentation by each licentiate of evidence that he has attended in the preceding year at least one of the two "educational" programs conducted by the Georgia Chiropractic Association.

Illinois

Bills Introduced.—S. 10 proposes to recodify the cities and villages act. Among other things, the bill proposes that in hospitals established by cities of less than one hundred thousand population "All physicians who are recognized as legal practitioners by the Department of Registration and Education shall have equal privileges in treating patients in such a hospital." H. 51 proposes to require every person employed in any capacity in any place in which food is sold for consumption on the premises to submit annually to an examination by the Department of Public Health to determine whether he is free from communicable tuberculosis or venereal disease.

Iowa

Bills Introduced.—S. 95 and H. 122 propose to enact a new pharmacy practice act and to limit the retail sale and distribution of drugs and medicines to pharmacies or drug stores operating under licenses issued by virtue of the act. The bill proposes, however, that licensed physicians, osteopathic "physicians," dentists and veterinarians may personally supply their own patients with such drugs and medicines as they may prescribe, provided they prescribe and dispense in compliance with the practice acts under which they are licensed. S. 157, to amend the chiropractic practice act, proposes, among other things, (1) to define the practice of chiropractic as "the adjustment of articulations of the spine and other incidental adjustments, and shall include the right to use air, light, heat, cold water, diet and exercise, in the treatment of disease, except as hereinafter specifically prohibited," and (2) to provide that chiropractors shall be entitled to all the rights and privileges of physicians and surgeons and shall be subject to all the duties and obligations of physicians and surgeons so far as they are not in conflict with the provisions of the chiropractic practice act and specially to prohibit a chiropractor "from practicing operative surgery, cautery, electro-coagulation, radium in any form, general hyperpyrexia, osteopathy, optometry, obstetrics, x-ray treatment, or administering or prescribing any drug or medicine included in materia medica." H. 35 proposes to authorize any law-enforcing official to direct the taking of a blood, urine, breath or body substance test to determine intoxication of any person under arrest for any crime in which the issue of intoxication may arise or in which intoxication may be the subject of the charge. Presumably the results of any test so made are to be admissible in evidence in subsequent court proceedings.

Kansas

Bill Introduced.—H. 31, to supplement the chiropractic practice act, proposes to condition the annual renewal of a license to practice chiropractic on attendance by the licentiate in the preceding year at the educational program conducted by the Kansas chiropractors' association or a postgraduate course equivalent thereto.

Michigan

Bills Introduced.—S. 66 proposes to make compensable any and all occupational diseases arising out of and in the course of employment. The bill proposes to define "occupational disease" as "a disease or disability which is due to causes and conditions which are characteristic of and peculiar to a particular trade, occupation, process or employment." S. 71 proposes that whenever in any proceedings before any court, board or commission, or other public body or officer, an order is made requiring a person to submit to a physical examination, the order shall also provide that the attorney for that person may be present at such physical examination. H. 84 proposes a supplementary appropriation of \$435,452.13 to the Michigan crippled children commission for the fiscal year ending June 30, 1941. S. 79 proposes to make it the duty of every hospital to render necessary first aid and other medical or surgical treatment to any person injured in an accident.

Minnesota

Bill Passed.—H. 83 passed the house, February 5, proposing to authorize the operation of nonprofit hospital service plan corporations by which hospital service will be provided by hospitals with which such corporations have contracts to persons who become subscribers to such plans. The bill specifically provides that nothing contained in it shall authorize any person, association or corporation to engage in any manner in the practice of healing.

Montana

Bills Introduced.—H. 50 proposes to repeal the existing law regulating the manufacture and distribution of foods and drugs and to enact a law regulating the manufacture, sale, distribution or advertising of foods, drugs, cosmetics and therapeutic devices. H. 72, to amend those provisions of the workmen's compensation act requiring an employer to furnish to his injured employees during the first six months after the happening of an industrial injury necessary medical and hospital services not exceeding \$500, proposes that the period and amount during and for which the employer may be liable may be extended in the discretion of the administrative board. S. 24 proposes to require an applicant for a license to practice any form of the healing art as a condition precedent to examination and licensure by his respective licensing board to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology before a board of basic sciences, which is to consist of five members "none of whom shall have graduated from any school of healing art, and who shall be members of the faculty of the University of Montana at Missoula Montana State College at Bozeman." S. 27 proposes to make it unlawful "for any person, firm, corporation or association to sell, furnish, or give away, or offer to sell, furnish or give away, or have in his possession Peyote (Pellote), Anhalonium or any compound, derivative, or preparation thereof; provided that the terms of this act shall not apply to transporting, possessing or using said peyote for religious sacramental purposes within the boundaries of an Indian reservation." H. 74, to amend the workmen's compensation act, proposes in effect to make compensable the disablement from silicosis of any employee in any occupation wherein there is an exposure to silica dust. The bill proposes to define "silicosis" as a "fibrotic condition of the lungs caused by inhalation of silica dust sufficient to render the workman incapable of following his regular occupation."

New York

Bills Introduced.—A. 442 proposes to authorize the establishment and operation of a state cancer hospital at Utica. Patients who are able to pay for the care and treatment may be admitted to such hospital but preference is to be given to those who are unable to pay in whole or in part for their care and treatment. A. 501, to amend the laws authorizing the operation of medical service plan corporations and hospital service plan corporations, proposes to prohibit medical expense indemnity corporations and hospital service corporations from employing solicitors or accepting business from brokers on a commission basis. The bill proposes that all solicitors must be paid on a salary basis only. A. 527 proposes to enact a separate chiropractic practice act and to create a board of chiropractic examiners to examine and license applicants for licenses to practice chiropractic. The bill proposes that the "Science of chiropractic" means "the art of palpating, manipulating and adjusting the human spinal column by hand only. It excludes operative surgery and the prescription or use of drugs or medicines, the reduction of fractures, obstetrics, osteopathy and physio-therapy."

North Carolina

Bill Introduced.—S. 67 proposes a procedure whereby hospitals may be reimbursed by the state for care they have rendered indigent persons injured in motor vehicle accidents.

Ohio

Bill Introduced.—H. 58 proposes that "In an action or proceeding where the physical condition of a party is in issue the court may, upon application of an adverse party, order said party to submit to a physical examination by a licensed physician approved by the court."

Oregon

Bills Introduced.—S. 62 proposes a new act to provide for the making, keeping and use of vital statistics and for securing complete data pertaining to births, deaths, stillbirths, marriages, divorces and annulments of marriages. H. 79 proposes a new act regulating the manufacture, sale, distribution and advertising of foods. S. 117, to amend the chiropractic practice act, proposes, among other things, to define chiropractic as "that system of adjusting with the hand or hands the articulations of the bony framework and soft tissue of the human body, and the employment and practice of physiotherapy, electrotherapy and hydrotherapy for the treatment, cure or mitigation of human disease; provided, that no person practicing under this act shall write prescriptions for, or dispense drugs, practice optometry, or naturopathy, or do major surgery." The bill also proposes to eliminate a provision in the present act providing that it shall not be construed so as to interfere with or prevent the practice of, or use of massage, Swedish movement, physical culture, neuropathy, naturopathy or other natural methods requiring the use of hand or hands. The bill also proposes to require an applicant for a license to have graduated from "an approved chiropractic school or college requiring for graduation a period of actual attendance equivalent not less than nine months for four years." Under the present law the required attendance at a chiropractic school is only three years of nine months each. H. J. R. 6 proposes to request the appointment of an interim commission of at least three qualified persons to make a complete survey of the teachings, staff, laboratory facilities, student bodies, physical facilities and type of training afforded in osteopathic schools, and of at least "one class A medical school." H. 98 proposes a procedure whereby hospitals may be reimbursed by the state for care rendered indigent persons injured in motor vehicle accidents. H. 103 proposes to require every licensed physician attending a pregnant woman for conditions relating to pregnancy during the period of gestation or at the time of delivery, to take or cause to be taken at the time of the first professional visit a sample of her blood and to submit the sample to an approved laboratory for a standard test for syphilis. H. 197, to amend those provisions of the medical practice act relating to the practice of osteopathy, proposes (1) to create a separate examining board for osteopaths and (2) to authorize the separate osteopathic examining board to examine and license applicants for licenses to practice osteopathy and to institute and determine proceedings looking toward the revocation of suspension of a license to practice.

Pennsylvania

Bill Introduced.—S. 51 proposes to authorize directors of school districts of the first class to furnish food, including milk, to poor school children attending their schools.

Rhode Island

Bill Introduced.—S. 51, to amend the workmen's compensation act, proposes to limit an employer's liability for reasonable medical, dental and hospital services for an employee injured from an industrial accident to \$500. If no hospital services are necessary, the extent of employer's liability is to be \$300. The present law limits the employer's liability in this respect to \$200 or \$250 according to circumstances.

South Dakota

Bill Introduced.—S. 73, to supplement the osteopathic practice act, proposes to permit the board of osteopathic examiners to license persons possessing the qualifications stated in the bill to practice surgery in all its branches. An osteopath is eligible to receive such a license if in addition to the qualifications now required by the osteopathic practice act he has served at least two years as an intern in a hospital at which general surgery is performed and which is approved by the osteopathic board and if he passes examinations to be given by the osteopathic board in surgical diagnosis, surgical technique and such other related subjects as the board may see fit to require. Even though an applicant for such an extended license may not have served an internship as above specified the board in its discretion may examine the applicant if he presents evidence of experience, post graduate work and special study in surgery.

Tennessee

Bills Introduced.—H. 426 and S. 314 propose to require applicants for licenses to practice any form of the healing art, as a condition precedent to examination and licensure by their respective licensing boards to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology before a board of examiners in the basic sciences. The board is to consist of five persons appointed by the governor. "No one shall be eligible for appointment as a member of the Board who is at the time of his appointment or has ever been actively engaged in the practice of the healing art or any branch thereof, and wherever possible, members of the Board shall be selected who are not engaged in teaching in any schools for education in the healing arts." S. 314 passed the senate February 5. S. 265 proposes a new act to provide for the making, keeping and use of vital statistics.

Texas

Bill Introduced.—S. 27, to amend the motor vehicles code, proposes that in the trial of any person charged with driving while intoxicated the court shall admit in evidence the result of any chemical test or analysis of the breath, urine, blood or other bodily substance of the defendant made at the time or within three hours after the commission of the alleged offense to show the amount of alcohol in the defendant's blood. The bill further proposes that any peace officer on arresting a person for driving while intoxicated may have a chemical test or analysis made of the breath, urine, blood or other bodily substance of such person within three hours after said arrest, either with or without the consent of the accused.

Utah

Bills Introduced.—S. 71 proposes that "Before any person shall issue any marriage license, each applicant therefor shall file with him a certificate from a licensed physician and surgeon which certificate shall state that the applicant has been given an examination, including a standard serological test for syphilis, made not more than thirty days prior to the date of issuance of such license and that in the opinion of such physician and surgeon, the person either is not infected with syphilis or other venereal

disease, or if so infected, is not in a stage of such disease which is or which may become communicable." S. 92 proposes to require applicants for licenses to practice any form of the healing art, as a condition precedent to examination and licensure by their respective licensing boards, to pass examinations in anatomy, physiology, pathology, bacteriology and chemistry, to be given by a committee of basic science examiners. The committee is to consist of five members, each of whom must be a full time paid professor, or associate or assistant professor, not actively engaged in the practice of the healing art but who is teaching a basic science. S. 72 proposes to require every licensed physician attending a pregnant or recently delivered woman for conditions relating to pregnancy to take or cause to be taken, at the time of the first examination or within ten days thereafter, a sample of her blood and to submit the sample to an approved laboratory for standard serologic tests for syphilis. H. 45 proposes to authorize the organization and operation of health cooperative associations to provide medical, dental, hospital and related services to members of such organizations.

West Virginia

Bill Introduced.—H. 95 proposes that whenever it is relevant in any action to determine the parentage or identity of any person or body, the court may direct any party to the action and the child of any such party and any other person involved to submit to one or more blood grouping tests to determine whether the defendant can be excluded as being the father of the child.

Wyoming

Bill Passed.—H. 40 passed the House February 1, proposing to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of a certificate from a licensed physician stating that the party has been given such examination, including a standard serologic test for syphilis, performed not more than ten days prior to the date of issuance of such license, and that in the opinion of the physician the party is either not infected with syphilis or other venereal disease or is not in a state of that disease which may become communicable.

OFFICIAL NOTES

RADIO BROADCASTS

"Doctors at Work" is the title of the sixth annual series of dramatized radio programs being presented by the American Medical Association and the National Broadcasting Company.

The series opened Wednesday, November 13, and will run for thirty consecutive weeks, closing with a broadcast from the A. M. A. meeting at Cleveland on June 4. The program is scheduled for 10:30 p. m. eastern standard time (9:30 central, 8:30 mountain, 7:30 Pacific time) over the Blue network, other N. B. C. stations and Canadian stations.

The programs are broadcast on what is known in radio as a sustaining basis; that is, the time is furnished gratis by the radio network and local stations, and no revenue is derived from the programs. Therefore, local stations may or may not take the programs, at their discretion, except those stations which are owned and operated by the National Broadcasting Company.

Some radio stations may be unable to broadcast the program at the regular scheduled time and may transcribe and broadcast it at another hour or even on another day. It is advisable

therefore to verify the time by reference to local newspapers or by telephoning the local Blue network stations.

The programs will dramatize what modern medicine offers the individual in the way of opportunities for better health and the more successful treatment of disease. Incidental to this main theme, the programs will explain the characteristics of the different fields of modern medicine and its specialties.

Descriptive posters for local distribution may be had gratis from the Bureau of Health Education, American Medical Association, 535 North Dearborn Street, Chicago. Program titles will be announced weekly in THE JOURNAL and monthly in *Hygeia*, the Health Magazine.

Tickets are available for each broadcast. Address the Bureau of Health Education, American Medical Association, 535 North Dearborn Street, Chicago. Tickets are free, but a stamped, self-addressed envelop should accompany requests.

The next three programs to be broadcast, together with their dates and titles, are as follows:

February 19. One Man's Poison.
February 26. Exploring Man's Mind.
March 5. Fit to Fight.

WOMAN'S AUXILIARY

Arkansas

The Jefferson County auxiliary was addressed on October 11 by Mrs. Alfred Hathcock of Fayetteville, president of the Woman's Auxiliary to the Arkansas Medical Society.

The Sebastian County auxiliary met, October 14, at the home of Mrs. Ruth Moss Carroll and voted to contribute \$10 to the state student loan fund and to renew complimentary subscriptions

of *Hygeia* to the girls' club, Rosalie Tilles Children's Home, Young Women's Christian Association and Carnegie Library.

Mrs. Hathcock was guest of honor when the Sevier County auxiliary met at the home of Miss Eleanor Park. Other state officers present were Mrs. Ralph Cross, third vice president and chairman of *Hygeia*; Mrs. Fount Richardson, secretary, and Mrs. Pierre Redman, parliamentarian. At the October 15 meet-

ing at the home of Mrs. C. E. Kitchens it was voted to make a contribution to the library fund for tuberculosis hospitals.

The auxiliary to the Bowie-Miller Counties Medical Society was addressed, October 25, by Mrs. William Hibbitts, of Texarkana, and Mrs. Alfred Hathcock, of Fayetteville, presidents respectively of the Texas and the Arkansas auxiliaries.

The Washington County Medical Auxiliary met with Mrs. Fount Richardson for a work meeting, October 18. Mrs. Alfred Hathcock presented the *Bulletin* of the American Medical Association auxiliary and urged that as many members as possible subscribe.

The Pulaski County auxiliary met at the home of Mrs. A. C. Shipp in October. The meeting was attended by fifty, thirteen of whom were new members. The student loan fund committee reported a cookie sale at which they made \$14.

At the November meeting of the auxiliary to the Ouachita County Medical Society Mrs. Arthur A. Herold, national legislative chairman, spoke on medical legislation. Mrs. C. W. Garrison spoke on the work of the auxiliary.

The Woman's Auxiliary to the Washington County Medical Society met in November at the home of Mrs. Friedman Sisco in Springdale. Twenty wash cloths were made for the WPA Nursery School at Fayetteville. Members decided to sew for the Red Cross. Mrs. H. H. Howze read a paper on "Hemophilia: One of the Causes for Political Upheaval Throughout the Centuries."

Mrs. A. A. Herold, Shreveport, La., national legislative chairman of the auxiliary, was a visitor at the meeting of the auxiliary to the Bowie-Miller County Medical Society at the home of Mrs. Harry E. Murry in Texarkana, November 22. Mrs. Herold spoke on the importance of health legislation and the part that physicians are taking in the preparedness program.

California

The Alameda County auxiliary opened the fall season with a reception at the Claremont Country Club, Dr. Gertrude Moore being the honored guest.

The Fresno County auxiliary has been approached by the local junior chamber of commerce to help in establishing an abatement district for mosquito control. The auxiliary has formed a committee for Allied relief.

The auxiliary to the Los Angeles County Medical Society had an attendance of one hundred members at a recent meeting at which Mrs. Robert Millikan's talk, "Trailing a Scientist Through India," was thoroughly enjoyed. Mrs. William C. Boeck gave an account of the state board meeting in Alameda County.

Dr. Norris R. Jones, president of the Sacramento County Medical Society, complimented forty members of its auxiliary on the splendid work accomplished during the past year. Health education will be stressed by the membership of the San Diego County auxiliary this year, arrangements having been made to assign speakers on medical topics to appear before the Girl Scouts, the Girl Reserves, the Boy Scouts, the Campfire Girls and the Parent-Teacher groups. Speakers will address adolescent boys, adolescent girls and a mixed group of adults at "Neighborhood House." Work is well under way on the survey, being conducted by the public relations committee, of which Mrs. Walton Lewis is chairman, which will produce a valuable index system of the various organizations in San Diego. More than two hundred and twenty-five organizations have been contacted, and information has been obtained as to the number of members, whether or not they have a health program and whether or not they would desire or permit speakers to appear before them. The auxiliary is also sponsoring a scholarship loan to assist worthy students in paying their expenses in medical schools.

The San Francisco auxiliary has decided to assist the British War Relief by giving a fashion talk and demonstration, the proceeds to supply medicine to the children of the British War Relief. Money recently raised for the Scholarship Fund has been sent to the universities of Stanford and California.

The Stanislaus auxiliary has embarked on a new project: It deals with occupational therapy for tuberculous patients at the county hospital. The membership will give financial and moral support, as well as help, to collect materials with which to work and will distribute the finished products.

Georgia

Three auxiliaries have recently been organized, those to the Grady County Medical Society, the Cobb County Medical Society and the Seventh District Medical Society. Plans were made to organize county auxiliaries in Whitfield, Floyd and Gordon counties.

Mrs. C. S. Pittman, of Tifton, was elected president of the auxiliary to the Second District Medical Society at a meeting in Cairo. Dr. J. A. Redfearn, of Albany, talked on the tuberculosis situation in Georgia, following which Mrs. H. G. Banister, of Ila, state president, talked on "Mobilization to Present-Day Conditions." Mrs. G. L. Loden, of Colbert, state chairman of health films, told of plans to show health films in all counties of the state. Members were guests of the doctors of the second district at a banquet.

The Woman's Auxiliary to the Ninth District Medical Association met at Canton. Mrs. H. G. Banister, of Ila, president of the Woman's Auxiliary to the Medical Association of Georgia, discussed the work to be undertaken during the year. It was reported that Gwinnett County had recently organized an auxiliary, the district now having seven counties organized, others being Jackson, Barrow, Habersham, Stephens, Cherokee and Pickens. The feature of the program was an illustrated lecture by Dr. Hugh Hailey, of Atlanta, on "Inflammation of the Skin Caused by Cosmetics."

Dr. Milford B. Hatcher talked on appendicitis at a recent meeting of the Woman's Auxiliary to the Bibb County Medical Society.

Illinois

The Woman's Auxiliary to the Chicago Medical Society held its annual "Public Relations Day" meeting, Wednesday, November 6, at the American Medical Association Building. Mrs. W. C. Bornemeier, president; Mrs. H. P. Jenkins, public relations chairman, and Mrs. John Soukup, program chairman, conducted the meeting. Three hundred members and guests representing the Federated Women's Clubs, Parent Teachers' Association and League of Women Voters attended. Dr. Morris Fishbein, Editor of *THE JOURNAL*, addressed the group on current topics of interest. After discussing the activities of the American Medical Association, he told of some of the fallacies of socialized medicine and pointed out the great interest which has been developed among lay organizations concerning this problem.

A staff of well informed guides then conducted the tour of the building, which ended in the dining room where tea was served. Envelops containing a copy of *Hygeia*, the booklet "Priceless Heritage," circulars concerning the women's field army and their drive for the control of cancer and a list of services offered lay organizations by the Educational Committee of the Illinois State Medical Society were distributed to the guests.

The Adams County medical auxiliary met, November 12, in Quincy with Mrs. J. F. Ross, the president, presiding. In the absence of Dr. R. A. Harris, Mrs. Harris read his paper, which dealt with some phases of the history of medicine, with emphasis on anesthesia. The November issue of *Hygeia* was reviewed and discussed.

The Peoria County auxiliary met at the Peoria Municipal Tuberculosis Sanitarium, November 12, with thirty-five members present. A tour of the institution was followed by a dinner. After the business meeting, Miss Zoe Velde, secretary of the Peoria tuberculosis Christmas seal sale, gave a short talk, and Dr. Max Pollak spoke on the Peoria Municipal Tuberculosis Sanitarium.

The woman's auxiliary to the north side branch of the Cook County Medical Society met in November at the Y. W. C. A. at Oak and Dearborn streets. Mrs. Harry Dooley discussed *Hygeia* and the "Benevolence Fund"; \$125 was voted for *Hygeia* subscriptions.

The Irving Park branch was addressed by Dr. W. W. Bauer, director of the Bureau of Health Education of the American Medical Association, on *Hygeia*. Mrs. W. J. Wanninger, national *Hygeia* chairman, Mrs. E. M. Egan, state chairman, and Mrs. C. R. Landis, county chairman, conducted a round table discussion on *Hygeia*.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Society News.—The Northwestern Division of the Medical Association of the State of Alabama was addressed at a meeting in Athens, January 9, by Drs. Wilbur M. Salter, Anniston, on "Training Children in Happiness Habits and Hygiene"; Robert B. Dodson, Cullman, "Anemia"; Alva A. Jackson, Florence, "Conservative Treatment of Gallbladder Disease"; Benjamin F. Morton, Birmingham, "The Problem of the So-Called Neurotic Patient," and Gilbert E. Fisher, Birmingham, "Carcinoma of the Lung."—Dr. James P. Collier, Tuscaloosa, discussed "Peripheral Vascular Diseases" before the Walker County Medical Society on January 10.

Two and a Quarter Million Dollar Hospital Dedicated.—The new Jefferson Hospital, Birmingham, erected at a cost of \$2,250,000, was dedicated on December 29, following a three day "open house." The building, financed by government funds under PWA control, is sixteen stories high with a capacity for 575 patients. In addition there are a nursery and quarters for nurses and interns. The fifth floor is exclusively for maternity patients; the seventh floor is given over to eleven operating rooms and laboratories. One floor is designed for communicable diseases and divided into three separate and complete units. The fifteenth and sixteenth floors contain living quarters for one hundred and fifty nurses and twenty-five interns and resident doctors.

CALIFORNIA

Bust of Hippocrates Given to School.—A bust of Hippocrates has been presented to the division of medical history and bibliography, University of California Medical School, San Francisco, by Dr. Pan S. Codellas and other members of the Greek colony of the city. Formal presentation was made recently at exercises commemorating the birth of Hippocrates, at which Dean Emeritus Langley Porter presided. The speakers were Drs. William Dock and Frederick L. Reichert of Stanford University School of Medicine, and Drs. Codellas, William J. Kerr, John B. de C. M. Saunders, Salvatore P. Lucia and Chauncey D. Leake, Ph.D., of the California faculty. The bust has been placed in the Crummer Room, where the university's collection on medical history is housed.

Cardiac Convalescent Home.—A group of buildings in the San Fernando Valley near Los Angeles, known as the Mother Cabrini Villa, has been converted into a cardiac convalescent home for girls. The institution, which has a capacity of one hundred, was formerly a "preventorium" for girls between 5 and 15 years of age. The building was erected by the Missionary Sisters of the Sacred Heart in 1920. The change in the type of care was brought about by requests from physicians, and others of southern California, according to the *Bulletin* of the American Heart Association. The girls are accepted regardless of race or creed. The activities of each child are supervised by qualified graduate nurses. Entrance requirements necessitate only that girls with heart disease or potential heart disease between the ages of 5 and 16 years be admitted. Duration of residence will be limited only by the age limit. Admission examination to determine classification is conducted at selected clinics in Los Angeles County. The new convalescent home is partially financed by the Los Angeles Community Chest and because of this the maximum rate for all care of a child while a resident is \$35 a month. At present the California Heart Association is making a survey of rheumatic fever in the state, and the development of convalescent institutions is a part of its major program.

COLORADO

Society News.—Dr. George M. Myers, Pueblo, discussed "Renal Calculi" before the Otero County Medical Society, La Junta, December 12.—The Pueblo County Medical Society was addressed, December 17, on "Current National Activities of Organized Medicine" by Dr. Guy C. Cary, Grand Junction, president-elect, Colorado State Medical Society.—The Colo-

rado Neurological Society was addressed in Pueblo, January 25, by Drs. Thad P. Sears, Denver, on "Carbon Monoxide Psychosis, with Presentation of a Case"; Irvin I. Schatz, Pueblo, "Personal Experiences with Brain Abscesses," and Carl Schwer, Pueblo, "Undiagnosed Psychosis with Somatic Background."

GEORGIA

The L. C. Fischer Awards.—The Fulton County Medical Society announces that the Dr. L. C. Fischer Award for the best original work has been given this year to Dr. Fred F. Rudder, Atlanta. His subject was "A New Apparatus for Administering Intravenous Anesthetic Agents." The award for the best written paper went to Drs. Thomas S. Claiborne and Bernard P. Wolff for their work on "Rheumatic Heart Disease: Post Mortem Studies in Atlanta."

Changes in Health Officers.—Dr. Charles O. Rainey, Camilla, is on leave of absence from the Mitchell County Board of Health to accept a temporary position as area medical officer of the extracountment area for Camp Stewart at Hinesville.—Dr. Irving E. Simmons, formerly director of the Nassau County Health Department in Fernandina, Fla., is the new health officer in Coffee County, with headquarters in Douglas.

ILLINOIS

Society News.—The Macoupin County Medical Society was addressed in Carlinville, January 27, by Drs. G. Henry Mundi, Chicago, on "Ophthalmology in General Practice" and Robinson Bosworth, East St. Louis, "Care and Control of Tuberculosis."—Dr. Frederick M. F. Meixner, Peoria, discussed "Influenza and Respiratory Infections" at a meeting of physicians of Schuyler and Cass counties in Beardstown, January 8.

Chicago

Hospital News.—Dr. Jacob P. Greenhill has been appointed attending physician (office service in obstetrics and gynecology) at Michael Reese Hospital. Promotions on the staff include those of Drs. John S. Coulter to senior attending physician in physical therapy and William H. G. Logan to senior attending surgeon in oral surgery.

Personal.—Dr. John Chornyak, psychiatrist for the Juvenile Court of Pittsburgh, has been chosen medical director of the Illinois Society for Mental Hygiene. He fills the vacancy that occurred in April 1940 when Dr. Conrad S. Sommer became superintendent of the division of mental hospitals in the Illinois Department of Public Welfare.

Society News.—Members of the staff of Evanston Hospital will present the program of the clinical section of the Chicago Heart Association February 20. Among others, Dr. Jay M. Garner, Winnetka, will speak on "Acute Pericarditis with Effusion and Response to Chemotherapy."

Branch Meetings.—The Jackson Park Branch of the Chicago Medical Society was addressed, January 16, by Drs. Ludvig Hektoen on "The Federal Cancer Program" and Bowman C. Crowell, "Influence of Cancer Clinics in Cancer Control."—Dr. Archibald L. Hoyne discussed "Importance of Observation in Diagnosis" before the West Side Branch on January 16.—A surgical symposium on "when not to operate" was presented before the Calumet Branch January 17, by Drs. Harry E. Mock, Lindon Seed and Channing W. Barrett.—The Northwest Branch was addressed by Drs. Francis E. Senear and Robert W. Keeton, February 14, on "Dermatology in Internal Medicine" and "Office Management of Diabetes" respectively.—Dr. Maurice I. Kaplan addressed the Douglas Park Branch, January 21, on "Radiation Therapy of Acute Infection with Special Reference to Osteomyelitis of the Digits."—The North Side Branch was addressed, February 6, by Dr. Russell L. Cecil, New York, on "Recent Advances in the Chemotherapy of Pneumonia."

INDIANA

Clinic Honors Physicians and Observes Anniversary.—The South Bend Clinic, South Bend, observed its twenty-fifth anniversary, January 8, at a dinner in the Hotel LaSalle and honored Drs. Walter H. Baker and Fred R. Clapp, the two remaining original partners of the institution. The clinic was established on Jan. 1, 1916.

State Medical Board.—The following officers of the Indiana State Board of Medical Registration and Examination were reelected at a recent meeting: Drs. Jacob T. Oliphant, Farmersburg, president; Norris E. Harold, Indianapolis, vice

president; Jesse W. Bowers, Fort Wayne, secretary, and William C. Moore, Muncie, treasurer.

Society News.—The Indiana Association for the History of Medicine met jointly with the Indiana History Society in Indianapolis, December 14, at the Indiana State Library. The speakers included Mrs. Olga S. Goldman, Indianapolis, "Biography of Dr. John S. Bobbs"; Dr. Edgar F. Kiser, Indianapolis, "Amos Twitchell's Copy of 'Beaumont's Physiology of Digestion,'" and Dr. Emmet F. Horine, Louisville, Ky., "Daniel Drake and His Contributions to Education."—The Indianapolis Medical Society was addressed January 23 by Drs. Arthur B. Richter on "Patent Ductus Arteriosus—Its Diagnosis and Indication for Surgical Treatment," and Calvin B. Fausset, "Elective Surgery of the Heart and Pericardium." The society devoted its meeting January 21 to a symposium on gynecology and January 14 to one on arthritis.

IOWA

Postgraduate Courses.—The speakers' bureau of the Iowa State Medical Society announces postgraduate medical courses now being conducted throughout the state in cooperation with local medical societies. The Marshall County Medical Society opened its course on January 7, the Boone and Story county medical societies on January 31. The course for the physicians of the Dickinson, Emmet and Clay county medical societies and vicinity will open in Spirit Lake on February 18 with Iowa physicians as the speakers. Out-of-state speakers will conduct the courses in Marshall, Boone and Story counties. Sessions will be held once a month over an eight or nine month period. A series of weekly postgraduate medical lectures is now being planned for the Poweshiek County Medical Society, to be given in October.

LOUISIANA

Personal.—Dr. Robert W. Faulk, Monroe, was guest of honor at the annual banquet of the Ouachita Parish Medical Society in recognition of his more than fifty years service as a physician in the community. He was presented with a plaque as a memento of the occasion.

Changes in Health Units.—Dr. John G. Norris, Farmer-ville, has retired from active practice to take charge of the Union Parish health unit, a position he formerly held.—Dr. Charles W. Reid, Coushatta, has been appointed director of the Red River Parish health unit.

Health Association Changes Name.—The Louisiana Association of Health Officers changed its name to the Louisiana Public Health Association during the annual session in New Orleans, December 11. Officers elected at this meeting include Dr. William W. Knipmeyer, Natchitoches, president, succeeding Dr. Christopher L. Mengis, New Iberia, and Dr. Reuben Alec Brown, New Orleans, secretary-treasurer.

MAINE

Society News.—Dr. James W. Toumey, Boston, discussed "Various Conditions Causing Low Back Pain" before the Cumberland County Medical Society, December 20.—The Kennebec County Medical Association was addressed in Augusta, December 19, by Dr. Albert Warren Stearns, Boston, on "Hypochondria and Hysteria, a Historical Study of the Evolution of Functional Nervous Disease."—Dr. Charles H. Lawrence, Boston, addressed the Penobscot County Medical Association in Bangor, December 17, on "Adolescent Menstrual Disturbances, Their Significance, Diagnosis and Treatment."

MASSACHUSETTS

Dr. Holmes Made Professor Emeritus.—Dr. George W. Holmes, clinical professor of roentgenology, Harvard Medical School, and chief roentgenologist at Massachusetts General Hospital, Boston, will become professor emeritus, September 1, according to an announcement from the university. Dr. Holmes has been a member of the staff of Harvard since 1916 as instructor in roentgenology, 1916-1923; assistant professor, 1923-1931, and clinical professor since 1931. He has been a member of the staff of Massachusetts General Hospital since 1911 and chief roentgenologist since 1917. He was president of the American Roentgen Ray Society in 1924 and has been a director of the American Society for the Control of Cancer since 1936. He has been a member of the National Research Council since 1927. He graduated at Tufts College Medical School, Boston, in 1906.

MICHIGAN

Dr. Slemmons Returns as Health Officer of Grand Rapids.—Dr. Clyde C. Slemmons, health commissioner of Grand Rapids from 1910 to 1930, has returned to serve in this position, succeeding Dr. John L. Lavan. A native of Cedar Springs, Dr. Slemmons graduated at the Detroit College of Medicine and Surgery in 1905. He served as state health commissioner from 1930 to 1938. He was president of the International Society of Medical Health Officers in 1937. Dr. Lavan resigned to take charge of health activities in Toledo, Ohio.

Michigan Participates in Youth Health Program.—At a meeting on January 12 the council of the Michigan State Medical Society approved the program of the National Youth Administration with respect to the medical care of out-of-school youth. All young men and women of ages from 16 to 24, out of school and unemployed, may through the Michigan State Employment Service be referred to the NYA for work experience. The hours of service are sixty a month and the rate of compensation to the youth is a minimum of \$18 a month, available in work projects. As the health program is a part of the national defense movement the government is requiring a careful physical examination, utilizing a medical examination blank which will be used throughout the forty-eight states. Units of forty youths now being trained are examined each day by teams nominated by county medical societies, made up of two internists, an eye, ear, nose and throat specialist, a dentist and necessary nursing assistance. All youths are to have a Kahn test, a roentgenogram of the chest and a urinalysis for sugar and albumin. About twelve minutes is allowed every youth for each examination. With two exceptions, the defects found are, in general, referred to the family physician for correction. In the Detroit area all dental defects, positive Kahn tests and diagnosed cases of tuberculosis are referred to the Wayne County Medical Society Medico-Dental Commission or the city board of health. As the visual defects will number only five to eight on an average in this group, it was thought desirable that the specialist prescribe simple lenses for the visual correction. However, any pathologic condition that may be discovered will be referred through the family physician to the proper agency or specialist. The rate for this unit examination has been fixed at \$25 for each physician for a day's service, the hours varying from six to eight each day. In the areas where the volume of work does not warrant a unit examination the work will be done, in the main, in the private physician's office with fees varying from \$3 per examination to a proportionate part of the per diem rate. Dr. Bernard W. Carey, Detroit, health consultant to the NYA, points out that, if good medical practices are instilled into the youth now, those needing medical service when on a self-supporting basis will obtain it at the regular established fee.

MISSISSIPPI

Personal.—Dr. Clyde M. Speck, New Albany, has been appointed assistant superintendent of the Mississippi State Hospital at Whitfield, succeeding Dr. Frank A. Donaldson, who resigned to become superintendent of the East Louisiana State Hospital, Jackson.—Dr. Thomas L. Owings, health officer of Pearl River County, with offices in Poplarville, has been appointed to a similar position in Lafayette County, succeeding Dr. Murphy M. Sims, Oxford, who has gone into military service.

Regional Fracture Meeting.—Dr. Charles L. Scudder, Boston, addressed a meeting at the LaMar Hotel, Meridian, January 7, on "The Fracture Committee of Mississippi" and "The Nucleus Pulposus Backache." An executive committee has been appointed to act for the state committee in promoting plans for improving the fracture services of the hospitals, to disseminate knowledge of methods of treatment of fractures to the physicians in the state and to provide more adequately for first aid and transportation of the injured.

Public Health Election.—Dr. Richard N. Whitfield, Jackson, director of the division of vital statistics, state board of health, was chosen president-elect of the Mississippi Public Health Association at its annual meeting in Jackson, December 13. Miss Opal Regan, Meridian, was installed as president and Dr. William H. Cleveland, Tupelo, retiring president of the association, became vice president. Dr. Calvin C. Applewhite, formerly health officer of Hinds County and now with the U. S. Public Health Service, was elected an honorary member at this meeting.

NEW YORK

Personal.—Dr. Harry Beckett Lang, superintendent of the Buffalo State Hospital, has been appointed assistant commissioner of the state department of mental hygiene.—Dr. Harwood L. Hollis, Lacona, has been appointed superintendent of the Oswego County Sanatorium, Richland, to succeed his father, Dr. Leroy F. Hollis, who recently resigned after serving for twenty-two years.

Society News.—Dr. Currier McEwen, New York, discussed "Diagnosis and Treatment of Arthritis" before the Dutchess County Medical Society, Poughkeepsie, January 8. Dr. Walter D. Ludlum Jr., New York, addressed the society, December 11, on "Recognition and Treatment of Hernia."—Dr. Loring T. Swaim, Boston, addressed the Medical Society of the County of Westchester, White Plains, January 21, on the treatment of chronic arthritis.

Hospital News.—The William Henry Hall Memorial, a new \$125,000 division of the St. Agnes Hospital for crippled children, White Plains, was dedicated by Archbishop Spellman on December 15. The new building is a gift from the Hall Foundation, established in 1936 by the will of Miss Martha M. Hall, daughter of William Henry Hall, a manufacturing chemist of New York. It will accommodate forty-eight boys and is equipped with a brace shop, gymnasium, occupational therapy room, two wards, isolation room, playroom, library and physical therapy department.

New York City

Dr. George Vincent Dies.—George E. Vincent, Ph.D., former president of the Rockefeller Foundation, died in the Columbia-Presbyterian Medical Center, February 1, aged 76. Dr. Vincent was born in Rockford, Ill., March 21, 1864, and after graduating from Yale University in 1885 took the degree of doctor of philosophy at the University of Chicago in 1896. He was president of the Chautauqua Institution, Chautauqua, N. Y., from 1907 to 1915 and honorary president from 1915 to 1937. Dr. Vincent was widely known as a public speaker and lecturer. He began teaching at the University of Chicago as a fellow in sociology and remained there until 1911, when he left the position of dean of the faculties of arts, literature and science to become president of the University of Minnesota, Minneapolis. In 1917 he resigned from Minnesota to take the presidency of the Rockefeller Foundation, which he held until his retirement in 1929. He was a member of the General Education Board from 1914 to 1929.

The City's Health.—New York had record low death rates for infant and puerperal mortality, pulmonary tuberculosis, diphtheria, pneumonia and typhoid, according to the annual report of Dr. John L. Rice, commissioner of health. The number of deaths from all causes was 76,008, giving a general death rate of 10.3 per thousand of population. The infant mortality rate decreased from 37.1 in 1939 to 34.9 in 1940, and the puerperal death rate decreased in the past five years from 5.2 per thousand live births in 1935 to 3 in 1940. The rate for diphtheria was 0.7 deaths per hundred thousand children under 15 years of age. Of thirty health center districts, six had no deaths from diphtheria. The pneumonia mortality dropped from 57.6 per hundred thousand in 1939 to 46.1 in 1940. Tuberculosis caused a rate of 49, which was a decrease from 52 in 1939 and the lowest rate ever reported. Scarlet fever and measles were twice as prevalent in 1940 as in the preceding year, but there were few deaths. For whooping cough, fewer cases were reported but more deaths. The number of cases of poliomyelitis was unusually small, 67 with 5 deaths. Similarly epidemic meningitis caused fewer cases and deaths than for many years, 48 cases with 15 deaths, a result partly credited to chemotherapy. The report directs attention to appendicitis, for which the death rate declined slightly. There were, however, 677 deaths, over 7 per cent of which were in children under 5 years old. This constitutes a serious public health problem, the report points out. With the progressive aging of the city's population, chronic diseases of later life are assuming greater importance. The death rates for diabetes, cancer and diseases of the heart, arteries and kidneys and apoplexy have steadily climbed higher during the last ten years. For 1940 the rates per hundred thousand were: diabetes 42, cancer 166.3 and diseases of the heart and related conditions 473.3. The suicide rate was slightly larger than it has been in the past five years, 1,229 deaths and a rate of 16.6. The high point of recent years was a rate of 22.7 in 1932. Deaths from accidents decreased slightly, from 53.2 per hundred thousand in 1939 to 51.9 in 1940. The birth rate was 14.5 per thousand of population, the highest since 1933, when it was 14.6.

NORTH CAROLINA

Professors Appointed to Bowman Gray School.—Appointment of three new members of the faculty of the Bowman Gray School of Medicine of Wake Forest College, to open in Winston-Salem next fall, has been announced. Dr. Tinsley R. Harrison, associate professor of medicine, Vanderbilt University School of Medicine, Nashville, Tenn., has been appointed professor of medicine. Dr. Wingate M. Johnson, Winston-Salem, will be professor of clinical medicine and Dr. A. deTalma Valk, Winston-Salem, professor of clinical surgery. Dr. Harrison, a graduate of the Johns Hopkins University School of Medicine, Baltimore, in 1922, has been associated with Vanderbilt since 1925. Dr. Johnson graduated from Jefferson Medical College in 1908 and has practiced in Winston-Salem for many years. He is editor of the *North Carolina Medical Journal*. He has been on the board of trustees of Wake Forest College for twenty years and is now president of the board. Dr. Valk, a graduate from Johns Hopkins in 1910, is chief of the surgical staff of the North Carolina Baptist Hospital, Winston-Salem.

OHIO

New Society of Neurology and Psychiatry.—The Cincinnati Society of Neurology and Psychiatry was recently organized with Drs. Thomas A. Ratliff as president; Erl Armitage Baber, vice president, and Charles D. Aring, secretary. At the first scientific meeting, January 23, Dr. Aring presented a paper on "Infectious Polynucleitis."

Cleveland Health Lectures on Defense.—The annual series of free public health lectures sponsored by the Academy of Medicine of Cleveland will have as their general theme "Health in Defense." For the first session the subject will be "The Family in War Time," with Dr. William M. Champion speaking on "The Child" and Dr. Harry D. Piercy on "The Adult." Dr. George F. Sykes will give the second lecture on "The Worker in War Time," March 23, and Lieut. Col. Edgar Erskine Hume, U. S. Army Medical Corps, Carlisle Barracks, Pa., will deliver the third, April 6, on "The Soldier."

PENNSYLVANIA

Society News.—Dr. David E. Hemington, Uniontown, addressed the Fayette County Medical Society, Uniontown, February 6, on "Industrial Medicine and National Defense."—Dr. Paul Titus, Pittsburgh, addressed the Washington County Medical Society, Washington, February 12, on "Human Sterility."—Dr. William F. Petersen, Chicago, was the guest speaker at the annual combined meeting of the McKeesport Academy of Medicine and the Valley Medical Society in McKeesport, January 27, on "Weather and the Practice of Medicine."

Philadelphia

Medicolegal Night.—The Philadelphia County Medical Society devoted its February 12 meeting to "The Crime Problem—New Concepts and Contributions." The speakers were William Draper Lewis, Ph.D., director of the American Law Institute, on "The American Law Institute's Youth Correction Authority Act" and Dr. Foster Kennedy, New York, "The Psychiatrist's Responsibility to the Criminally Insane and to Society." Commentators were the Hon. James Gay Gordon Jr., president-judge, common pleas court No. 2, and Dr. Edward A. Strecker. Members of the judiciary and the bar association were guests at the meeting.

Pittsburgh

Personal.—Homer Saint-Gaudens, for the last twenty years director of fine arts at Carnegie Institute in Pittsburgh, is now on active duty in the Corps of Engineers and as technical advisor on camouflage studies being conducted in the office of the Chief of Engineers in Washington, D. C. Colonel Saint-Gaudens is the son of Augustus Saint-Gaudens, the great Irish-American sculptor; he served in the first World War with the first camouflage unit and was in charge of camouflage on the front of the second camouflage division.

Society News.—Speakers at a meeting of the Pittsburgh Surgical Society, January 24, were Drs. Edward J. McCague on "Traumatic Injuries of the Genito-Urinary Tract"; Grover C. Weil, Harold W. Rusbridge and Darrell W. Whitaker, "Treatment of Compound Wounds and Surgical Infections by the Local Implantations of Sulfathiazole, with Special Reference to Compound Fractures," and Stuart N. Rowe, "Neurosurgical Treatment of Certain Types of Low Back Pain."

TENNESSEE

Plans for Psychiatric Hospital.—Plans for a diagnostic clinic and psychiatric hospital as an addition to the John Gaston Hospital, Memphis, teaching hospital of the University of Tennessee College of Medicine, have been announced. The new building will have six floors, four to be used as an outpatient department for the John Gaston Hospital and two for a fifty bed psychiatric hospital. It will cost about \$450,000. All patients admitted to the Western State Hospital, Bolivar, will enter the psychiatric hospital for diagnosis and classification, and selected cases will be kept there for treatment for instructional purposes. Medical students will be rotated through the psychiatric hospital as in other departments.

TEXAS

Special Society Meeting.—Dr. Everett L. Goar, Houston, was elected president of the Texas Ophthalmological and Otolaryngological Society at its annual meeting in Fort Worth in December. Drs. Burbank P. Woodson, Temple, and Phocian W. Malone, Big Spring, were elected vice presidents and Dr. Daniel Brannin, Dallas, was reelected secretary. The guest speakers were Drs. Samuel J. Kopetzky, New York, on management of otitis and Peter C. Kronfeld, Chicago, early diagnosis of glaucoma.

Clinical Assembly in San Antonio.—The International Postgraduate Medical Assembly of South Texas held its ninth annual clinical meeting in San Antonio, January 28-30. The lecturers were Drs. Horton R. Casparis and Tinsley R. Harrison, Nashville, Tenn.; William H. Crisp and Franklin G. Ebaugh, Denver; Temple S. Fay, Philadelphia; Walter A. Fansler, Minneapolis; Bernard H. Nichols and Roy W. Scott, Cleveland; Francisco de P. Miranda, Mexico City; Thomas B. Sellers, New Orleans; John A. C. Colston, Baltimore; Roy D. McClure, Detroit; John R. Page and Arthur Purdy Stout, New York; Francis M. Rackemann, Boston; John C. Wilson, Los Angeles, and Major Samuel F. Seeley, Fort Sam Houston, Texas.

UTAH

Society News.—The Carbon County Medical Society was addressed in Price City, December 11, by Dr. Thomas F. Welsh, Salt Lake City, on "Otitis Media, Complications and Treatment."

VIRGINIA

Annual Course in Ophthalmology and Otolaryngology.—The fifteenth annual spring graduate course will be presented by the Gill Memorial Eye, Ear and Throat Hospital, Roanoke, April 7-12. Guests who will conduct clinics include Drs. Alfred Cowan and Robert A. Groff, Philadelphia; James H. Maxwell, Ann Arbor, Mich.; Paul M. Moore Jr. and Albert D. Ruedemann, Cleveland; Raymond E. Meek, Algonon B. Reese, Clarence R. Straatsma and Arno E. Town, New York; Carleton Stewart Nash, Rochester, N. Y.; Leroy A. Schall and Theodore L. Terry, Boston; Warren T. Vaughan, Richmond, and Frank B. Walsh, Baltimore.

Society News.—Dr. Bayard T. Horton, Rochester, Minn., addressed the Neuropsychiatric Society of Virginia at a meeting in Charlottesville recently on "A New Syndrome of Vascular Headache: Results of Treatment with Histamine." Speakers at a meeting of the Fourth District and Southside Virginia Medical Society in Petersburg, December 27, included Drs. Ramsay Spillman, New York, on "What Every Physician Should Know About the Spread and Prevention of Tuberculosis"; Thomas Duckett Jones, Boston, "New and Interesting Phases of Rheumatic Fever"; William B. McIlwaine III, Petersburg, "Sulfathiazole and Allied Types of Chemotherapy in Children," and Claude C. Coleman, Richmond, "Signs and Symptoms of Brain Tumors That Should be Familiar to Every Physician."—The Roanoke Academy of Medicine held a special meeting February 3 with Drs. Herbert F. Traut, New York, and Joseph Earle Moore, Baltimore, as the speakers on "Upper Urinary Tract Infection Complicating Pregnancy" and "Venereal Disease Control in the Armed Forces" respectively.

WISCONSIN

Lakeside Laboratories Expand.—Drs. Elmer L. Sevringhaus, Madison, and Eugene F. Traut, Chicago, were the speakers at a meeting on December 28 marking the opening of a new building of the Lakeside Laboratories, Milwaukee. Dr. Sevringhaus discussed "Clinical Endocrinology" and Dr. Traut "Treatment of Arthritis." The new addition doubles the space previously occupied by the firm.

Lippitt Memorial Lecture.—Dr. Lee E. Farr, director of research, DuPont Institute, Wilmington, Del., delivered the sixth annual Lippitt Memorial Lecture, January 17, at the Marquette University School of Medicine, Milwaukee. His subject was "The Role of Diet in the Therapy of Nephritis." The lecture honors the late Dr. S. Herman Lippitt, associate clinical professor of pediatrics at the university for many years before his death in 1934 and for ten years on the staff of Mount Sinai Hospital.

GENERAL

Grants Available for Infantile Paralysis Research.—The National Foundation for Infantile Paralysis will hold a semiannual meeting of its medical committees on May 15 to consider grants for study of the cause, prevention and treatment of infantile paralysis. Applications must be received on or before March 15 at the office of the foundation, 120 Broadway, New York.

American Diabetes Association.—A new organization known as the American Diabetes Association, Inc., has been formed, and committees are now at work on membership and program. The officers of the new organization are Drs. Cecil Striker, Cincinnati, president; Herman O. Mosenthal, New York, and Joseph T. Beardwood Jr., Philadelphia, vice presidents; Samuel S. Altschuler, Detroit, secretary; William Muhlberg, Cincinnati, treasurer. The honorary president is Dr. Elliott P. Joslin, Boston, and the honorary members are Drs. Frederick G. Banting and Charles H. Best, Toronto. The board of trustees comprises thirteen well known physicians from various cities.

"Pan American Union Against Cancer" Not Known.—The Pan American Sanitary Bureau recently issued the following statement: "It has come to the notice of the Pan American Sanitary Bureau that some one (not a physician) has been trying to organize a Pan American Union Against Cancer. An inquiry has elicited from Dr. Ludvig Hektoen, executive director of the National Advisory Cancer Council of the United States, the information that the National Cancer Institute is not in any way associated with this project and that no other governmental agency is supporting it to date, nor, so far as is known, is the American Society for the Control of Cancer."

Legislation for Control of Fireworks.—The National Fire Protection Association Model State Fireworks Law has been introduced in the following states:

Kansas: House bill 65, referred to Committee on State Affairs.
Minnesota: House bill 47, referred to General Legislative Committee.
Massachusetts: House bill 1651, referred to Committee on Military Affairs and Public Safety.
Ohio: House bill 12.
North Carolina: A senate bill, referred to Committee on Propositions and Grievances. (This bill was introduced by Senator D. M. Stringfield.)
Maryland: House bill 29, referred to Judiciary Committee.

This legislation is planned to control unnecessary hazard to health and property from the use of fireworks under uncontrolled conditions.

Orthopsychiatric Meeting.—The American Orthopsychiatric Association will hold its eighteenth annual meeting at the Hotel Pennsylvania, New York, February 20-23, under the presidency of Dr. Paul L. Schroeder, Chicago. The program will open with a symposium on "What Can Psychiatry Contribute to the Alleviation of National and International Difficulties?" A luncheon round table on pediatrics and child psychiatry will follow. There will be another symposium on "Direct Psychotherapy in Adolescence" and special sessions devoted to cultural psychology, psychopathology of childhood and youth, therapy, case work and the case worker, education and school, family and foster home and prevention. Dr. Schroeder will deliver his presidential address at the annual dinner on Friday evening.

Special Society Elections.—Dr. Carl E. Badgley, Ann Arbor, Mich., was chosen president-elect of the American Academy of Orthopaedic Surgeons at its annual meeting in New Orleans, January 16, and Dr. Oscar L. Miller, Charlotte, N. C., was inducted into the presidency. Other officers are Drs. Herman C. Schumm, Milwaukee, vice president; Eugene Bishop Mumford, Indianapolis, treasurer, reelected, and Rexford L. Diveley, Kansas City, Mo., secretary.—Dr. Ernest W. Goodpasture, Nashville, Tenn., was elected a vice president of the American Association for the Advancement of Science and chairman of the section on medical sciences (N) at the annual midwinter meeting in Philadelphia.—Dr. Oswald T. Avery, New York, was elected president of the Society of American Bacteriologists at the annual meeting in St. Louis in December.

Fellowships in Child Psychiatry.—The National Committee for Mental Hygiene announces that a limited number of fellowships for training in extramural psychiatry, especially child psychiatry, have been provided by the Commonwealth Fund and other sources. Fellows are to be assigned through the committee for one or two years to a selected child guidance clinic, the term and plan of the fellowship to be determined by the peculiar needs of the fellows. Candidates for fellowship awards should have at least two years of psychiatry in an approved mental hospital, in addition to other qualities fitting them for extramural service. Other conditions such as age, sex and marital status will be governed by individual cases and by the nature of the demand. Requests for applications for fellowships should be addressed to Dr. Milton E. Kirkpatrick, National Committee for Mental Hygiene, Room 916, 1790 Broadway, New York.

Examinations by Obstetric Board.—General oral and pathological examinations (part II) for all candidates (groups A and B) will be conducted by the American Board of Obstetrics and Gynecology at Cleveland May 28 to June 2, inclusive. Application for admission to group A, part II, examinations must be on file in the office of the secretary not later than March 1. Candidates for reexamination in part II must make written application to the secretary's office before April 15. The board states that military service will not affect the eligibility of any candidate as far as the board requirements regarding limitation of practice are concerned. Military service will under no circumstances be considered as an infringement of any regulations outlined in this board's booklet. The board requests that all candidates who plan to submit applications use the new form, which may be obtained from the secretary on request. Address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6).

American Physicians' Art Association.—The secretary of the American Physicians' Art Association, Dr. Francis H. Redewill, 521 Flood Building, San Francisco, requests any physician who has an art piece in any medium that he would like to donate as a trophy to the American Physicians' Art Association to send it properly boxed and shipped express collect to the librarian H. G. Marquez, Ph.D., American Physicians' Art Association, 521 Flood Building, San Francisco. Art pieces donated will be placed on exhibition in the booth of the association in Cleveland, June 2-6, during the annual session of the American Medical Association. Dr. Redewill has sent to members of the American Physicians' Art Association a questionnaire asking for brief information about each member which the association will publish in booklet form; snapshots and other pictures of members at work or play also are requested. The headquarters of the American Physicians' Art Association at the Cleveland meeting will be booth 493 in the technical exhibit of the American Medical Association, a booth which Mead Johnson & Co. has offered the art association.

Pacific Coast Surgical Association.—The sixteenth annual meeting of the Pacific Coast Surgical Association will be held at the Ambassador Hotel, Los Angeles, February 19 under the presidency of Dr. Charles T. Sturgeon, Los Angeles, whose subject will be "The Surgical Management of Chronic Duodenal Ulcer." Other speakers will be:

- Dr. Henry H. Searls, San Francisco, A Family with Hemolytic Icterus.
- Dr. William K. Livingston, Portland, Ore., Back Disabilities Due to Strain of the Multifidus Muscle Treated by Novocain Injections.
- Drs. Leroy C. Abbott, John B. de C. M. Saunders and Carl E. Anderson, San Francisco, Injuries to the Ligaments of the Knee.
- Dr. Thomas F. Mullen, San Francisco, The Urologic Complications of Carcinoma of the Rectum.
- Dr. George K. Rhodes, San Francisco, Observations on Acute Pancreatitis with Blood Amylase Studies.
- Dr. John Homer Woolsey, Woodland, Calif., The Problem of the Common Duct Stone.
- Dr. Robert D. Forbes, Seattle, Secondary Operations on the Biliary System.
- Dr. Emil F. Holman, San Francisco, Aseptic Technique for Resection of the Stomach.
- Drs. Samuel Robinson and Leigh Gordon Fiske, Santa Barbara, Calif., An Instrument for Retraction of Viscera During Peritoneoscopy.
- Dr. Brian T. King, Seattle, Further Observations on an Operation for the Relief of Bilateral Abductor Cord Paralysis.
- Dr. Herbert S. Chapman, Stockton, Calif., Hyperparathyroidism.
- Dr. Raymond E. Watkins, Portland, Ore., Carcinoma of the Cervical Stump Following Hysterectomy.
- Dr. Ous F. Lamson, Seattle, An Appliance for Colostomy Control.

College of Physicians Offers Postgraduate Courses.—For the fourth year the American College of Physicians has arranged a series of postgraduate courses in cooperation with various institutions. The courses vary in length from one to three weeks and are offered primarily for fellows and associates of the college, but where facilities are available they

are open to physicians preparing either to meet the requirements for membership in the college or for the examinations of the American Board of Internal Medicine. During February courses are being given as follows: allergy, Washington University School of Medicine, St. Louis, under the direction of Dr. Harry L. Alexander; allergy, Roosevelt Hospital, New York, under Dr. Robert A. Cooke, and gastrointestinal diseases, Mayo Foundation and Mayo Clinic, Rochester, Minn., under Dr. Edgar V. Allen. Future courses are announced as follows:

- General medicine, Harvard Medical School, Boston, March 31 to April 18, under Drs. James H. Means, George R. Minot, Soma Weiss and Robert T. Monroe.
- Allergy, Massachusetts General Hospital, Boston, April 10-18, under Dr. Francis M. Rackemann.
- Gastroenterology, Robert Dawson Evans Memorial, Massachusetts Memorial Hospitals, Boston University, April 14-19, under Dr. Chester S. Keefer.
- General medicine, University of Michigan Medical School and University Hospital, Ann Arbor, April 7-19, under Dr. Cyrus C. Sturgis.
- Clinical medicine from the hematologic point of view, Ohio State University College of Medicine, Columbus, April 14-19, under Dr. Charles A. Doan.
- Cardiovascular disease, University of Pennsylvania School of Medicine and Graduate School of Medicine, Philadelphia, April 7-19, under Dr. William D. Stroud.
- Military medicine, U. S. Army Medical Corps, U. S. Navy Medical Corps and U. S. Public Health Service, Washington, D. C., April 7-18, with Dr. Wallace M. Yater as coordinator.

CORRECTIONS

Anorectal Operative Procedures with Special Reference to Avoidance of Pain.—In THE JOURNAL, February 1, page 363, in the discussion of Dr. Arthur S. Calman on the paper by Dr. Harry E. Bacon, two sentences were inadvertently omitted. After the sentence "A suture ligature of number 00 plain catgut, which is absorbed shortly, is then passed around the distal end of the hemorrhoid and ligated" the following two sentences should follow: "The hemorrhoidal mass, composed of vein and periphrigebic areolar tissue, is then dissected out from its bed without sacrificing any mucosa. The two mucosal flaps covering the operative area are not sutured together."

National Emergency and Health Insurance.—In the editorial entitled "The National Emergency as a Pretext for Compulsory Health Insurance" in THE JOURNAL, January 25, there is in the first sentence of the last paragraph on page 310 an erroneous statement with respect to the number of initiative measures that were before the Washington electorate in the November election. Only three such measures were on the ballot and not "a hundred or more," as stated in the editorial. However, the further statements made in discussing initiative measure 141, the so-called Senior Citizens Grants Act, which was approved by the Washington electorate, are correct. The measure does require the state to provide at the expense of the state medical, hospital, dental and nursing care to persons eligible for the senior citizen grants authorized by the measure. And the ballot title of the measure did not indicate to the voter that he was passing on a measure that would provide medical care at the expense of the state to the beneficiaries of the measure.

Government Services

Physicians Needed for CCC Duty

Applications are invited from physicians for medical service in the Civilian Conservation Corps in the Seventh Corps Area, which includes Minnesota, North and South Dakota, Iowa, Nebraska, Missouri, Kansas and Arkansas. The initial salary is \$3,200 a year. No quarters for families are provided, and the physicians are required to pay for their own food at the camps. The principal duties consist of the medical care of the enrollees and the practice of preventive medicine. To be eligible for this service, the physician must be a citizen of the United States, a graduate of an accredited medical school authorized to confer the degree of doctor of medicine and physically able to perform the duties involved. All physicians interested in this type of work are requested to submit their applications to the Office of the Surgeon, Seventh Corps Area, Federal Building, Omaha.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 28, 1940.

The Food Situation in Europe

In a previous letter it was shown that the food shortage in Europe, apart from that due to the ravages of war, was the result of plundering of the enslaved peoples by the Germans. Britain's contention that there is no necessity for America to send food ships to German occupied countries, as advocated by Mr. Hoover and others, is confirmed by a report issued by the Berlin Institute for Business Research. This claims that Germany is in a position to guarantee the feeding of every one on the Continent and says that, since exports to England have ceased, foodstuffs produced in Europe provide nourishment for the peoples under the German distribution organization. A list attached to the report gives German stocks and production as 90 per cent of the requirements, southeastern Europe as 110 and other percentages as Denmark 108, Italy 95, France 83, the Netherlands 67 and Belgium 51. No figures are given for Poland or Norway. But reliable reports have reached the British Ministry of Economic Warfare that two million workers brought into Germany from occupied countries are finding their food rations inadequate and that bad feeding has led to disturbances. Referring to Mr. Hoover's efforts in the last war to relieve the food shortage in Germany, Mr. Hugh Dalton, minister of economic warfare, said in a speech "I am afraid that they prolonged the war and cost the lives of many, including American soldiers." He could not see the arguments for Mr. Hoover's latest plan. There was no reason to suppose that there would be any starvation on the Continent unless the Germans willed it. If we did let in food, it would inevitably assist the enemy.

There are signs that the food position in France may become tragic. The Germans have seized about 60 per cent of all the crops in both occupied and unoccupied France. They have taken the pigs and all other supplies of animal fat. The weekly meat ration of 13 ounces includes bones and trimmings, leaving only about 10 ounces of actual meat. To obtain this quantity it is necessary in certain cities to form queues as early as 4 a. m. In the cities there is no butter or suet. Soap is almost unobtainable. Stocks of fruit are rapidly coming to an end; as much as 25 cents is sometimes paid for an apple. The Germans have removed from Normandy and Brittany all the cider apples for the manufacture of some war product of which the nature is not known. The restaurants serve food against ration cards, but the amount is inadequate. German officers eating in restaurants are given the ration cards for three persons and other ranks the cards for two.

The British government has given the International Red Cross Committee at Geneva an assurance that ships carrying parcels for prisoners of war and containing foodstuffs, blankets and underclothing, will be allowed to proceed freely to Europe. The parcels are to be unshipped at Lisbon and transported and distributed by the Red Cross. The British government has also declared itself ready to facilitate the importation into European countries of strictly medical and pharmaceutical products intended for the sick and wounded.

The Danger of Flying Glass in Air Raids

The research and experiments department of the Ministry of Home Security has shown that the danger during air raids from flying glass is considerable. While the fragments have not caused many deaths, they have been responsible for a large proportion of the injuries when the bombs have fallen among houses and also for serious damage to food stocks. The blast of a bomb falling within 200 feet may burst windows and cause

a hail of broken glass, driving dagger-like pieces into walls or into cans containing food. Curtains and blinds do little to stop flying glass. Materials pasted on glass have proved effective in preventing glass fragments from flying, though they do not prevent windows from being broken. The cheapest and simplest material to use is cotton or linen fabric pasted all over the glass with paperhanger's paste. Brown paper will do if tough and thick. Windows left open are less likely to suffer from the effects of a blast.

Science and War

In a broadcast Sir William Bragg, lately president of the Royal Society, took for his subject Science and War. He said that the war had been called a scientists' and engineers' war. When people saw the damage it was natural for them to curse scientists and engineers for their devilish inventions. But science was knowledge about the world around us, which scientists were trying to increase. They could not control the use made of inventions. The same knowledge might be used to make drugs which controlled a deadly disease or to make poison gas. We lived in an age in which machines of all kinds were improved rapidly from year to year and the same held for weapons of war.

When war threatened, the Royal Society made a register of our scientists—an action never taken before. The results were interesting. We had about ten thousand scientific researchers, of whom sixteen hundred were chemists, one thousand physicists, five hundred mathematicians and seven hundred zoologists. Fifteen hundred were engaged in medical research. The remaining three or four thousand scientists were employed in the universities and technical colleges. Our trouble was that we had not organized our scientists for war. Apart from a small band in service departments, our scientists were engaged in peaceful occupations, whereas the best German technicians had been drawn in for many years. But fortunately the British were good at improvising in an emergency. He could not give away any secrets, but he could quote from a German source. In his book, Captain Dove, one of the prisoners on the *Graf Spee*, related what Captain Langsdorf of that ship said "We invented the magnetic mine eight years ago and for eight years have been trying to find the antidote without success. Now the British Navy has to start where we began." But the British Navy found the antidote in eight weeks, not eight years.

Sir Arthur Hurst

Sir Arthur Hurst has retired from the active staff of Guy's Hospital, where his great pioneer work in medicine has been done, although his personal teaching will continue in another but related sphere. Owing to the difficulty in carrying out clinical teaching in the London hospitals during the war, it was decided last October to start a clinical school in Oxford for students who, having finished their preclinical course, would under ordinary conditions have gone to London hospitals for their clinical work. Nearly all the students have availed themselves of the opportunity of doing their clinical work in comparatively peaceful surroundings. Sir Arthur Hurst and Prof. George Gask, formerly director of the surgical unit at St. Bartholomew's Hospital, were invited to help the medical and surgical staffs of the Radcliffe Infirmary, Oxford, in their clinical teaching and have been appointed respectively lecturer in clinical medicine and lecturer in clinical surgery of the University of Oxford.

Sir Arthur Hurst has also retired from the editorship of *Guy's Hospital Reports*, and the current number is dedicated to him in commemoration of his work, which is described as follows: "The origin, continuance and great success of the quarterly series during nineteen years have been entirely due to his energy, inspiration and unremitting labor. Between the two European wars they have been a manifestation of Hurst himself." To the *Reports* he has contributed seventy-eight

papers, of which sixty-four appeared during his editorship. Many, such as "The Passage of Food Along the Alimentary Canal," "The Sensibility of the Alimentary Canal" and "The War Neuroses and the Neuroses of Civil Life," have become classic, and all of them have proved valuable and stood the test of time—characteristics of Hurst's work.

He has been not only a great contributor to the *Reports* but an inspiring teacher, leader and editor. Hurst's influence also extends to sixty-one papers written by members of the hospital staff, such as registrars, house physicians and clinical assistants. A feature of Guy's Hospital, perhaps unique in the medical world, is two clinical wards to which cases of special interest are admitted and which is always a center of active research. The appointment as clinical assistant to these wards is one of the oldest nonsurgical clinical appointments in the world and certainly goes back one hundred years. Every three months, six senior students are appointed to these wards. Most of the cases quoted by Bright and Addison in their classic works were written by "clinicals." As these two famous Guy's physicians have been mentioned, a third, Hodgkins, may be added, as all three have passed into history in eponyms. A valuable feature of the present series of the *Reports* is seven yearly publications of "Cases from Clinical." It was in 1836 that *Guy's Hospital Reports* first appeared as a yearly volume, and it was continued until 1915, when publication was suspended by the great war, to be resumed in 1921 as a quarterly under the editorship of Sir Arthur Hurst. Perhaps at no hospital in the world has so much been done to increase clinical knowledge, and no other reports contain so much valuable material.

PALESTINE

(From a Special Correspondent)

Nov. 16, 1940.

Twenty Years of British Medical Service in Palestine

Col. G. W. Heron, director of medical services, spoke on the radio on twenty years' medical service of the British administration in Palestine. Under the Turks, which means before 1917, there was no organized medical service in the country. Some medical officers in larger towns performed sanitary and medical work. Hospitals existed only in Jerusalem and Nablus. After the occupation in 1917 a public health section under the late Colonel Garner was established. In 1920 the military administration was replaced by a civil government. The department of health was created. Colonel Heron stated that progress has not been confined to the activities of the government. Each community has had a share: the Mission hospitals, the Jews with the Hadassah and Kupath Cholim organization, the Arabs and Moslems with voluntary hospitals and free clinics. In 1920 there were twenty-three public hospitals. In 1940 there are thirty-nine. The Jewish community maintains today twelve, the government nine, the Arabs one purely Arab voluntary hospital. The most modern and largest hospitals are the Government Hospital at Haifa and the Hadassah University Hospital, built in 1939, on Mount Scopus, Jerusalem.

In 1918, before hostilities in Palestine ceased, the American Zionist Medical Unit came to Palestine and formed the nucleus of the Jewish medical service of today. This service included the Hadassah organization with its hospitals, school and infant welfare services; the Kupath Cholim organization, with over a hundred thousand members, some municipal or community hospitals, the antituberculosis league, the organization for the crippled children and other welfare services. Colonel Heron told about the antimalarial work. "In the last war Lord Allenby had to reckon on 5 to 10 per cent of his fighting forces being noneffectives from this cause between April and October 1918. Today among the men under General Neame that figure stands at a fraction of 1 per cent."

There are eighty-five babies' welfare centers, forty-eight supported by the Jewish community, thirty-four by the government and three by mixed Arab and European woman's committees. The general infant death rate in Palestine has been reduced to less than half what it was in 1920. With the assistance of Sir John Strathearn and his collaborators a government service has been established throughout the country with thirty-one eye clinics, of which twenty are first aid stations in villages. This service includes a mobile unit with a specially fitted lorry, a trailer caravan for the nurses and tents; 32,000 patients have been treated till now in tents. Colonel Heron's report included the work on hookworm, tuberculosis and quarantine control, the collaboration with laboratories and sanitary surveyors of municipalities and ambulance service.

Venereal Disease Control

A control scheme for fighting venereal diseases in Palestine was established four years ago. Now a review in *Health and Empire* notes the rapid strides made against these diseases. The total number of attendances at various clinics amounted to 9,729 in 1936 and 42,730 in 1939. For seamen of all nationalities exist facilities for free treatment in Haifa and Jaffa. A special campaign was made against endemic syphilis in Hebron, where the infection was commonly acquired by infants from neglect of hygienic conditions.

Australian Gift to the Red Cross

During September nine all steel motor ambulances built by Jewish and Arab factories in Palestine were delivered to Lord Somers, Middle East commissioner for the British Red Cross, by Col. Harold Cohen, overseas commissioner for the Australian Red Cross Society. Lieut. Gen. Sir Thomas Blamey accepted three weeks ago six motor ambulances for the Australian Imperial Force as a gift of the Australian Red Cross.

Appointment of Prof. Chaim Weizman

Prof. Chaim Weizman, president of the Jewish Agency and director of the Daniel Sieff Research Institute at Rehovot, has been appointed a scientific adviser to the British government, and a government laboratory has been put at his disposal. In 1914 Professor Weizman was lecturer in chemistry at Manchester University and discovered a valuable method of synthesizing acetone. This method permitted him to make acetone out of horse chestnuts.

Cancer Research Institute

The new department of the medical school (Nathan Ratnoff building) of the Hebrew University is the Cancer Research Institute under the direction of Professor Halberstaedter and Dr. Doljanski. Prof. Carl Neuberg has been appointed director of the chemical department of the Cancer Research Institute. Professor Neuberg was director of the Kaiser-Wilhelm Institute of Biochemistry in Berlin-Dahlem, and was founder and editor of the *Biochemische Zeitschrift*.

Marriages

WILLIAM MORTON BOGART JR., Minneapolis, to Miss Bertha Mae Johnson of Clifton Forge, Va., Nov. 9, 1940.

FREDERICK A. DOWDY, Birmingham, Ala., to Miss Anne M. Elliott of Moundville in Cleveland, Nov. 4, 1940.

FRANCIS NICHOLSON TAYLOR to Miss Sarah Elizabeth Madison, both of Petersburg, Va., Nov. 12, 1940.

THOMAS GIBSON BROOKS, Aiken, S. C., to Miss Alice Danforth in New York, Nov. 16, 1940.

THOMAS A. COATES, Youngstown, Ohio, to Miss Virginia O'Hearn at St. Louis, Nov. 1, 1940.

BERNARD S. ANDROSKY, Pittston, Pa., to Miss Marie Austin of Exeter, Nov. 16, 1940.

Deaths

Charles Wardell Stiles * Medical Director, United States Public Health Service, Washington, D. C., who retired from active duty, Oct. 1, 1931, died, January 24, in the U. S. Marine Hospital, Baltimore, of myocarditis. Dr. Stiles was born in Spring Valley, N. Y., May 15, 1867. He received his early education at Wesleyan University, Middletown, Conn., and studied later at foreign universities, taking the degree of doctor of philosophy at Leipzig in 1890. He was awarded the honorary M.D. degree from the University College of Virginia, Richmond, in 1913. Dr. Stiles began his service with the government in 1891 as zoologist to the bureau of animal industry of the department of agriculture. In 1902 he joined the public health service as professor of zoology. He held teaching positions in medical zoology at Georgetown University from 1892 to 1906, the Army Medical School from 1894 to 1902, Johns Hopkins University from 1897 to 1937 and the Naval Medical School from 1905 to 1910. From 1909 to 1914 he was scientific secretary of the Rockefeller commission for the eradication of hookworm. He was the author of many books relating to his specialty and of a key catalogue of the parasites of man and animals, indexed in all the most important languages. Dr. Stiles was honorary custodian of the helminthological collections in the United States National Museum from 1893 to 1931; secretary of the advisory commission of the Smithsonian Table at Naples Zoological Station since 1894; United States government delegate to the International zoological congresses in Leiden in 1895, Cambridge 1898, Berlin 1901, Berne 1904, Boston 1907, Graz 1910, Monaco 1913, Budapest 1927 and Padua 1930. He was secretary of the International Commission on Zoological Nomenclature from 1897 to 1936 and secretary of the International Commission on Medical Zoology from 1910 to 1913. He was detailed as agricultural and scientific attaché in the United States Embassy, Berlin, Germany, 1898-1899. Since 1931 he had been an associate of the Smithsonian Institution, professor of zoology at the Rollins College, Winter Park, Fla., from 1931 to 1938 and a member of many American and European scientific societies. In 1892 he was elected foreign correspondent of the Société de biologie, France; in 1896 foreign correspondent of the Académie de médecine, France, and in 1899 corresponding member of the Zoological Society of London.

William Browning * Brooklyn; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1881; lecturer on anatomy and physiology of the nervous system from 1884 to 1901, professor of neurology from 1901 to 1926 and since 1926 emeritus professor of neurology at the Long Island College Hospital, now the Long Island College of Medicine; president, 1901, and trustee since 1927, Medical Society of the County of Kings; a founder and past president of the Medical Library Association and of the Brooklyn Neurological Society; member of the American Neurological Association and the Association of American Anatomists; for many years state examiner in lunacy; served on the staffs of the Kings County, Wyckoff Heights, Long Island College, Jewish, Norwegian, St. John's, St. Catherine's, St. Christopher's, Brooklyn, Brooklyn State, Bushwick, Long Island State, Caledonian, Eastern District and Sea View hospitals; author of "The Normal and Pathological Circulation in the Central Nervous System" and "Medical Heredity"; aged 85; died, January 5, of carcinoma of the rectum.

George Frederick Juenemann * Colonel, United States Army, retired, Los Angeles; Columbian University Medical Department, Washington, D. C., 1897; entered the army as an assistant surgeon Sept. 12, 1903; veteran of the Spanish-American and World wars; retired as a lieutenant colonel Dec. 31, 1922, for disability in line of duty; was retired as a colonel by a special act of Congress June 21, 1930; aged 65; died, Dec. 10, 1940, in the Veterans Administration Facility, West Los Angeles, of coronary occlusion.

Henry Bernard Freiberg * Cincinnati; University of Cincinnati College of Medicine, 1918; assistant professor of clinical surgery (urology) at his alma mater; member of the American Urological Association; formerly secretary of the Cincinnati Academy of Medicine; fellow of the American College of Surgeons; attending urologist, Children's, Cincinnati General and Jewish hospitals; director, urology division, Deaconess Hospital; assistant attending urologist, Christ Hospital; aged 46; died, January 22, of pulmonary thrombosis and abscess due to a fall.

Charles Stewart Barnes, Philadelphia; Jefferson Medical College of Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; associate professor of obstetrics, Temple University School of Medicine; past president of the Philadelphia Obstetrical Society; aged 78; on the staff of the Philadelphia General Hospital; for many years on the staff of the Temple University Hospital, where he died, Dec. 29, 1940, of carcinoma of the stomach with metastasis.

Clyde Ernest Stackhouse * Bismarck, N. D.; Northwestern University Medical School, Chicago, 1910; was a delegate of the American Medical Association at a special session in 1935; past president of the North Dakota State Medical Association; formerly medical referee of the North Dakota State Board of Public Welfare; on the staff of St. Alexius Hospital; aged 55; died, Dec. 26, 1940, of coronary thrombosis.

John Howard Allen * Colonel, United States Army, retired, Dixon Springs, Tenn.; Columbian University Medical Department, Washington, D. C., 1899; entered the army as an assistant surgeon July 16, 1901; veteran of the Spanish-American and World wars; promoted through the various grades to that of colonel, June 29, 1927; retired Feb. 28, 1934, for disability in line of duty; aged 67; died, Dec. 3, 1940, of pneumonia.

Thomas Reese Foster, Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; served during the World War; on the staff of the Leland Sanatorium, Ypsilanti, Mich.; aged 72; died, Dec. 3, 1940, in the Veterans Administration Facility, Hines, of gastric carcinoma.

Bernard Patrick Murphy, Putnam, Conn.; Jefferson Medical College of Philadelphia, 1895; member of the Connecticut State Medical Society; veteran of the Spanish-American War; aged 68; on the staff of the Day Kimball Hospital, where he died, Dec. 14, 1940, of carcinoma of the cecum.

Francis Parrier Horan * Evanston, Ill.; University of Pennsylvania Department of Medicine, Philadelphia, 1907; served during the World War; on the staff of St. Francis Hospital; aged 60; died, Dec. 23, 1940, of coronary thrombosis.

Zera Merritt Beaman * North Manchester, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; past president of the Wabash County Medical Society; aged 60; died, Dec. 20, 1940, of cerebral hemorrhage.

Marion Donoby Eubank, Kansas City, Mo.; Marion-Sims College of Medicine, St. Louis, 1893; Northwestern University Medical School, Chicago, 1896; formerly a medical missionary; aged 78; died, Dec. 5, 1940, of cerebral hemorrhage.

George Nelson Murphy, St. Johns, Newfoundland; Halifax Medical College, Halifax, N. S., Canada, 1895; Bellevue Hospital Medical College, 1895; past president of the Newfoundland Medical Society; aged 70; died, Nov. 18, 1940.

Horace E. Evans, Perry, Ga.; Atlanta School of Medicine, 1911; member of the Medical Association of Georgia; aged 56; was killed, Dec. 15, 1940, when the automobile in which he was driving was struck by a train.

William Fuller Conners, Fulton, N. Y.; University of the City of New York Medical Department, 1880; aged 90; died, Nov. 14, 1940, of chronic nephritis and myocarditis.

Leroy Bromwell Humphrey, Los Angeles; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1893; aged 73; died, Dec. 15, 1940, of coronary occlusion.

Luke Irdel Foster, Ellijay, Ga.; Boston University School of Medicine, 1933; member of the Medical Association of Georgia; aged 32; died, Dec. 10, 1940, of heart disease.

Stephen Don Dorsey, Cumberland, Iowa; State University of Iowa College of Medicine, Iowa City, 1937; aged 27; was found dead, Dec. 2, 1940, of a self-inflicted bullet wound.

Francis Asbury Appgar, Oldwick, N. J.; Bellevue Hospital Medical College, New York, 1876; aged 89; died, Dec. 30, 1940, of uremia, pyelonephritis and posterior spinal sclerosis.

John Harbour McBee, Greenwood, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1903; aged 57; died, Dec. 14, 1940, of coronary thrombosis.

Justin Angus McDonald, Prince Albert, Sask., Canada; University of Manitoba Faculty of Medicine, Winnipeg, 1926; aged 41; died, Nov. 6, 1940.

Cyrus E. Johnston, Anna, Ohio; Starling Medical College, Columbus, 1880; aged 90; died, Dec. 19, 1940, of heart disease.

John F. Jessee, Waddy, Ky.; Louisville Medical College, 1888; aged 82; died, Dec. 7, 1940, of cardiac thrombosis.

Ralph Van Carpenter, Denver; Rush Medical College, Chicago, 1927; aged 42; died, Dec. 13, 1940.

Correspondence

PREGNANCY ACCIDENTS IN DIABETES

To the Editor:—There are several apparent flaws in the paper of Dr. Priscilla White entitled "The Prediction and Prevention of Pregnancy Accidents in Diabetes" in *THE JOURNAL*, Dec. 14, 1940, page 2039.

Before it can be concluded that pregnancy accidents in diabetes can be "prevented by continuous substitutional estrogen and progesterone therapy in replacement doses" and that this treatment is "well within the field of practical therapeutics," it might be well to examine the papers of the Smiths (*Am. J. Obst. & Gynec.* 33:365 [March] 1937; 36:769 [Nov.] 1938; 39:405 [March] 1940) on which Dr. White's work is based. From their work and Dr. White's earlier paper (*Am. J. M. Sc.* 198:482 [Oct.] 1939) one finds that pregnancy accidents may occur in patients with a normal hormonal balance and that abnormal hormonal balances may revert to normal without treatment. Since Dr. White's paper makes no mention of using alternate patients for treatment, how can one tell how many patients were actually benefited by hormone treatment? A recent personal communication from the Smiths states, in fact, that they are strongly of the opinion that any therapeutic trials with estrogen and progesterone should be made with the realization that this field is one of research investigation.

Apparently White feels that her results are so much better than those usually obtained that controls are unnecessary. In this connection I would point out that in a group of 53 pregnant women with diabetes at the Boston Lying-in Hospital there were 8 fetal deaths, or a 15 per cent mortality. These women received no specific treatment other than for the diabetes, and all were delivered normally whenever possible in accordance with the procedure discussed in our paper (Hurwitz and Irving: *Am. J. M. Sc.* 194:85 [July] 1937). This mortality rate compares favorably with the 33 per cent given by White as the usual fetal mortality and with the 13 per cent of her hormone-treated series. As to her statement that obstetric hospitals may report lower rates owing to "a difference in patient clientele . . . obstetric hospitals seeing many short duration cases with onset of diabetes during pregnancy," it may be emphasized that (1) we receive many patients with severe diabetes from other diabetic clinics in Boston which have no obstetric facilities; (2) if we divide our cases into two groups of 27 cases with onset of diabetes before pregnancy and 26 cases with onset of diabetes after pregnancy, we find 4 fetal deaths in each group, or the same mortality rate, 15 per cent; (3) if we classify our diabetic patients according to severity of the diabetes, we find that there were three fetal deaths in the group of 19 women who never required insulin (16 per cent mortality) and only one death in the group of 13 women who required more than 60 units of insulin daily (8 per cent mortality). Apparently, then, the more severe the diabetes, the better the chance for a live baby!

The problem of the high fetal mortality from diabetic pregnancies will be solved by (1) demonstrating a preventable cause of fetal death, which has not been done as yet, or (2) showing a convincing drop of fetal mortality by using a therapeutic measure in alternate cases.

Neither the unqualified recommendation of cesarean section with its attendant higher maternal mortality, which was a previous contribution of Dr. White's (*Surg., Gynec. & Obst.* 61:324 [Sept.] 1935), nor the enthusiastic sponsorship of hormone studies and treatment, which are time consuming, expensive and not readily available to most hospitals, should be accepted without better scientific controls.

DAVID HURWITZ, M.D., Boston.

NOTE.—This letter was submitted to Drs. White and Joslin, who reply:

To the Editor:—Between January 1936 and January 1941 we have had 82 pregnant diabetic patients on whom hormonal studies have been done. Among our 12 consecutive abnormal untreated patients fetal survival was 42 per cent; among 35 consecutive abnormal but treated, as described in my paper, 89 per cent; among 35 normal diabetic patients 91 per cent. In the light of these figures we are unwilling to increase the number of untreated abnormal patients.

Perhaps clarity in the matter of controls was sacrificed for brevity in the article which appeared in *THE JOURNAL*. I myself can see no scientific difference between the selection of alternate patients for therapy and of patients selected as in this work, namely, (1) 12 consecutive abnormal patients untreated, (2) 13 consecutive abnormal patients treated in the matter outlined by the Smiths, (3) 11 consecutive abnormal patients treated with oral preparations, (4) 11 consecutive abnormal patients treated with intramuscular preparations different from group 2. In addition, for controls we have those unfortunate patients subjected to my errors in the estimation of dosages of therapy.

Also because of limited space the character of the diabetes was not given in detail for the individual cases. Such complete data are given on pages 696 and 697 of the seventh edition of "Treatment of Diabetes Mellitus" by Joslin, Root, White and Marble.

As an added control on our series we should like to make determinations of the gonadotropic substance at two week intervals between the twentieth and thirty-second weeks and determinations of the pregnandiol from the twelfth week on diabetic patients not under our immediate care.

The previous contribution in *Surgery, Gynecology and Obstetrics* (61:324 [Sept.] 1935) was not a recommendation of cesarean section per se but a recommendation for a premature delivery to anticipate placental degeneration, since at that time we had no method of differentiating those patients susceptible and those not susceptible to this accident.

Finally, in our series of patients there are well defined causes of fetal death: (1) intra-uterine death associated with mild preeclamptic toxemia and hormonal imbalance, (2) an asphyxial death, without maternal symptoms, in a premature infant whose mother's hormonal balance was abnormal, (3) lethal congenital anomalies, (4) causes of death as in any obstetric practice—hemorrhagic disease of the newborn, pneumonia, erythroblastosis. Causes 1 and 2, "toxic," are, I believe, preventable, 3 not and 4 as in any obstetric series.

PRISCILLA WHITE, M.D., Boston.

To the Editor:—May I add a summary of my experience with pregnant diabetic women?

1. In 1913 I was placed in charge of a pregnant diabetic woman by Dr. B. while he went to Europe. The woman left me for a cultist and on Dr. B.'s return I was upbraided because he found her toxemic and she and her infant died and her husband committed suicide. Thereupon I reported all my cases up to that time of pregnant patients with diabetes (*Boston M. & S. J.* 173:841, 1915).

2. The first notable achievement was Mrs. G. She had had twelve dead babies in succession and at least half of them while she was diabetic. I saw her first in coma in the sixth month of pregnancy. Later her diabetes proved so mild that she was able to omit insulin. As a stunt I brought her into the hospital, put her in a private room, kept her under close supervision and, thanks to Dr. R. S. Titus, who delivered her by cesarean section, she completed her thirteenth pregnancy and had her first living child. Presumably all of her earlier pregnancies could have resulted in the same way if attention to details and money had been available. She taught me

that the patient with ordinary mild diabetes can go through pregnancy successfully if treated with meticulous care.

3. Then came the period of deaths because of giant fetuses—superb babies which were lost immediately before, during or just after confinement. I shall never forget the sight of one of those truly beautiful, big, dead infants, nor do their mothers—because I still have them for patients.

4. Another phase of pregnancy followed the lengthening of lives of diabetic women—young women—and with sorrow now and again macerated fetuses were found at term and we wondered why, and at this time Dr. White came on the scene.

5. Our pregnant diabetic patients henceforth were in many instances hospitalized for the last three months. Some had live babies and some did not, but Dr. White definitely convinced us that deaths were not due to inadequate control of diabetes, to acidosis or to insulin reactions. She observed that among pregnancies eventually ending with dead babies from eight to two weeks before term there had been a brief period of indisposition, a gain in weight, a rise of blood pressure and the presence of albuminuria. In a few days the patient was about as well as ever, but fetal activity had ceased and at delivery weeks later the fetus was macerated. Thereupon clinical surveillance was sharpened. She saw these patients twice a day, and when these signs were observed delivery

Values of Gonadotropic Substances in Pregnancy

Gonadotropic Substance	Cases	Live Babies (per Cent)
Normal	35	91
Abnormal		
Untreated	12	42
Treated	35	89

was instantaneous by cesarean section and our statistics improved. When we postponed delivery we lost the child. Another accident which could not be anticipated was premature delivery with neonatal death.

6. Then followed the hormone studies, suggested by the Smiths to complete their investigation of preeclamptic toxemia. At present there are 82 patients on whom estimations of gonadotropic substances have been made and in addition nearly all have had determinations of the pregnandiol. Twelve of the abnormal patients were untreated. The data are summarized in the table.

With such figures, which kind of supervision, study and treatment ought one to advise for our one hundred young women as they become pregnant, whose duration of diabetes is already fifteen years but with its onset in childhood?

7. Finally, the cases in our series reported by Dr. White are by no means all as spectacular as the following three cases, and another one in an earlier series, but these four deserve mention:

The first patient, with onset of diabetes at 8 years, was first pregnant at 24, with subsequent removal of a dead fetus in London while under the care of men all would recognize as outstanding. During the second pregnancy, when the duration of diabetes was eighteen years, high determinations of gonadotropic substance were made and she was treated for three months: cesarean section with birth of a live baby. The third pregnancy, when the duration of diabetes was twenty years, again with a high determination of gonadotropic substance and similar treatment: cesarean section with birth of a live baby.

The second patient, with onset of diabetes at 10 years, had her first pregnancy after she had had diabetes for twenty-one years, at the age of 31. High determinations of gonadotropic substance and marked preeclamptic toxemia were treated by replacement therapy: a live baby by cesarean section.

The third patient, with onset of diabetes at 24, had five unsuccessful pregnancies—two neonatal deaths, a twelfth week

abortion, a twentieth week miscarriage and one therapeutic abortion. The second viable infant had been especially supervised with the greatest care by a prominent medical man and an obstetrician who delivered her by cesarean section. The baby died eighteen hours after birth. I forbade an abortion in the spring of 1940, and later this patient, whose pregnandiol was found to be low and whose gonadotropic substance was high, was treated with hormones by Dr. White. Otherwise her treatment was as in the second pregnancy, and on December 31 she was delivered by cesarean section by Dr. Titus of a living child. And, incidentally, I will add that all 82 patients were under the supervision and immediate care of Dr. White of our group and nearly all have been delivered by Dr. Titus, and following birth the infants have had the helpful advice of Dr. Warren Sisson.

The fourth patient is now in the hospital, as a volunteer, for some weeks undergoing tests with three new kinds of insulin. When I see her each morning and remember that she has no children, having lost all four in the course of her diabetic pregnancies, all with toxemia prior to 1930, and contrast her situation with the patients with normal gonadotropic substance, or if abnormal treated, of whose infants 89 per cent survived, I am unwilling to suggest to the six patients now awaiting confinement under Dr. White's care that they go without treatment if their gonadotropic substance is abnormal. These patients range in age from 24 to 38, have had diabetes from six months (1) to fifteen years (1) and have been under observation by Dr. White beginning with the second to the sixth month of pregnancy. Of these, all are primiparas.

8. It would be advantageous in this discussion if other patients with onset of diabetes at ages 8 and 10 years and with durations of the disease of eighteen, twenty and twenty-one years who have had successful outcomes of pregnancy could be reported, especially if their values for gonadotropic substance were known. In fact, if further series of cases were published with details such as are shown in the article of Hurwitz and Irving or in our own, it would be advantageous to all.

ELLIOTT P. JOSLIN, M.D., Boston.

MÉNIÈRE'S DISEASE AND HISTAMINE

To the Editor:—I have read, with interest, the query and answer regarding Ménière's disease and histamine which appeared in THE JOURNAL, January 11, page 177. The reference to the preliminary report (Shelden, C. H., and Horton, B. T.: Treatment of Ménière's Disease with Histamine Administered Intravenously, *Proc. Staff Meet., Mayo Clin.* 15:17 [Jan. 10] 1940) is correct as stated but is, in a way, misleading. I presume that the newspaper account referred to by Dr. Odis A. Cook of Anadarko, Okla., had to do with a symposium on the treatment of Ménière's disease in which I took part and which was given before the American College of Surgeons in Chicago, Oct. 22, 1940; this report will appear in *Surgery, Gynecology and Obstetrics* later.

It is not my purpose here to argue the value of the Furstenberg method as compared with the histamine method of treatment of Ménière's disease. These methods will have to rise or fall on their own merits. The majority of our patients selected for treatment with histamine had previously been on a Furstenberg regimen without satisfactory results. I am concerned only with the fact that histamine in a 1:250,000 solution such as we originally suggested can be given intravenously to human subjects with perfect safety. During 1940 we actually gave histamine intravenously in this manner one thousand, two hundred and seventy-two consecutive times without any untoward effects. In no instance have we encountered acute histamine shock. The intravenous administration of histamine in the treatment of

Ménière's disease is so simple that it can be given in the home or as a part of office treatment. Our patients here at the Mayo Clinic are not hospitalized for this purpose. Ampules which contain 2.75 mg. of histamine diphosphate (this is equivalent to 1 mg. of histamine base) are now on the market and, by adding 1 ampule to 250 cc. of physiologic solution of sodium chloride, one has readily available the proper solution to be administered intravenously. We still employ the drip method and are using it daily in our routine work.

BAYARD T. HORTON, M.D., Rochester, Minn.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS

EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, February 8, page 533.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 17-19. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARKANSAS: * Medical. Little Rock, June 5-6. Sec., Dr. D. L. Owens, Harrison. Eclectic. Little Rock, June 5-6. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), San Francisco, April 16. Written. Los Angeles, Feb. 24-27. Sec., Dr. Charles B. Pinkham, 1020 N. St., Sacramento.

CONNECTICUT: * Medical. Written. Hartford, March 11-12. Endorsement. Hartford, March 11-12. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Derby, March 11-12. Sec., Dr. Joseph H. Evan, Haven.

DELAWARE: July 8-10. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * Washington, May 12-13. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: * Jacksonville, June 23-24. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDaho: Boise, April 1. Dir., Bureau of Occupational License, Mr. U. B. Whittlesey, 335 State Capitol Bldg., Boise.

ILLINOIS: Chicago, April 1-3. Superintendent of Registration, Department of Registration and Education, Mr. Lucien A. File, Springfield.

INDIANA: Indianapolis, June 17-19. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, Citizens Trust Bldg., Fort Wayne.

KANSAS: Kansas City, June 17-18. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, June 5-7. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

MAINE: Portland, March 11-12. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: Medical. Baltimore, June 17-20. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. Homoeopathic. Baltimore, June 17-18. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, March 11-13. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: * Ann Arbor and Detroit, June 11-13. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing.

MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: Reciprocity. Helena, March 31. Written. Helena, April 1. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEW HAMPSHIRE: Concord, March 13-14. Sec., Board of Registration in Medicine, Dr. T. P. Burroughs, State House, Concord.

NEW JERSEY: Trenton, June 17-18. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 14-15. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

VIRGINIA: Richmond, June 17-20. Sec., Dr. J. W. Preston, 3025 Franklin Road, Roanoke.

WEST VIRGINIA: Charleston, March 3. Sec., Public Health Council, Dr. Arthur E. McClure, State Capitol, Charleston.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Tucson, March 18. Sec., Mr. Franklin E. Roach, Science Hall, University of Arizona, Tucson.

COLORADO: March 6-7. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

DISTRICT OF COLUMBIA: Washington, April 21-22. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: De Land, June 7. Applications must be on file not later than May 24. Sec., Prof. J. F. Conn, John B. Stetson University, De Land.

RHODE ISLAND: Providence, Feb. 19. Sec., Division of Examiners, Rev. Nicholas H. Serror, Providence College, Providence.

SOUTH DAKOTA: June. Sec., Dr. G. M. Evans, Yankton.

WISCONSIN: Madison, April 5. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Avenue, Milwaukee.

Ohio Reciprocity Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports 41 physicians licensed to practice medicine by reciprocity and 3 physicians so licensed by endorsement on October 1. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine....	(1934),	(1935)	Arkansas
Howard University College of Medicine.....	(1938)		N. Carolina
Loyola University School of Medicine.....	(1939)		Arizona
Northwestern University Medical School.....	(1934, 2)		Wisconsin,
(1938) Pennsylvania, Oregon			
Rush Medical College.....	(1933)		Penna.
State University of Iowa College of Medicine.....	(1933),	(1939)	Iowa
University of Kansas School of Medicine.....	(1938)		Kansas
Kentucky University Medical Department.....	(1910)		Kentucky
University of Louisville School of Medicine.....	(1940)		Kentucky
University of Michigan Medical School.....	(1931), (1932),	(1938)	Michigan
Wayne University College of Medicine.....	(1937)		Michigan
St. Louis University School of Medicine.....	(1925), (1934)		Missouri,
(1938) Tennessee			
Washington Univ. School of Med....	(1936, 2), (1938),	(1940)	Missouri
University of Nebraska College of Medicine.....	(1939)		Nebraska
Long Island College of Medicine.....	(1937)		New York
Syracuse University College of Medicine.....	(1930)		New York
University of Buffalo School of Medicine.....	(1935)		New York
University of Oklahoma School of Medicine.....	(1939)		Oklahoma
Jefferson Med. College of Philadelphia.....	(1911) Penna.,	(1938)	W. Virginia
Temple University School of Medicine.....	(1938)		Penna.
Univ. of Pennsylvania School of Med.....	(1933), (1934),	(1936)	Penna.
Meharry Medical College.....	(1937)		Tennessee
Vanderbilt University School of Medicine.....	(1936), (1937)		Tennessee
Medical College of Virginia.....	(1930)		Virginia
Wisconsin College of Physicians and Surgeons.....	(1912)		Missouri

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad.	of
Harvard Medical School.....	(1936) N. B. M. Ex.		
St. Louis University School of Medicine.....	(1939) N. B. M. Ex.		
University of Pennsylvania School of Medicine.....	(1919) N. B. M. Ex.		

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Failure of Physicians to Remove Foreign Body from Eye; Necessity for Expert Testimony.—While doing some carpentry work the plaintiff got something in his right eye which caused a severe burning pain. After having three roentgenograms taken of his right eye he consulted Dr. Ballard, who examined his eye and then attempted to secure from a local hospital a "giant magnet" used for withdrawing foreign objects from the eye. The physician, however, was refused the use of the instrument, because he was not a member of the staff of that hospital. The next day the plaintiff's eye was again examined with roentgen rays, this time by a Dr. Judson at the Los Angeles County General Hospital. He was denied admission to the county hospital but he was admitted to the California Hospital the following day. There he was placed under the care of a Dr. Boyce whom he had met at the county hospital. Dr. Boyce, after causing additional roentgenograms to be taken by a Dr. Blaine, performed an operation on the plaintiff's eye, assisted by a Dr. Rogers. The operation consisted of an attempt to withdraw the particle in the eye with a magnet followed by an attempt at removal by incision when it was discovered that the foreign body was non-magnetic. The second day after the operation Dr. Boyce took the plaintiff to Drs. Ray and Rodman Irvine, who advised against any further surgical attempt at removal. A few days later Dr. Boyce looked at the eye, which by that time had become swollen shut, and informed the patient that he had "panophthalmitis." Subsequently the plaintiff brought a suit for malpractice against all the physicians named and the California Hospital. From a judgment for the defendants the plaintiff appealed to the district court of appeal, second district, division 1, California.

In the opinion of the district court of appeal, the record was barren of any evidence of negligence by Drs. Judson, Blaine, Ray Irvine and Rodman Irvine or by the defendant hospital. Regarding the alleged malpractice of Drs. Boyce and Rogers, the plaintiff contended that he had gone to the hospital and sought medical aid for only one purpose, to have the foreign body

removed from his eye by the use of the "giant magnet," and that by performing a cutting operation the physicians had exceeded their authority. The court, however, held that the plaintiff had placed himself under the physicians' care for the removal of a particle from his eye and that they resorted to surgery only after the use of the magnet proved ineffective. The court could not agree with the plaintiff's further contention that defendants Boyce and Rogers were negligent in making their diagnosis, in failing to locate the foreign particle and in determining that it was nonmagnetic. A mistake in diagnosis, said the court, would not make a physician liable in the absence of expert testimony of lack of due care, diligence, judgment and skill. The plaintiff had failed to introduce any expert testimony whatever to show that the diagnosis was incorrect or that some method or means other than that used should have been employed in an attempt to remove the foreign body from his eye. In the absence of such testimony, concluded the court, the judgment of the trial court in favor of all the defendants was proper. The judgment of the trial court was therefore affirmed.—*Adams v. Boyce et al.*, 99 P. (2d) 1044 (Calif., 1940).

Malpractice: Failure of Physician to Administer Antitetanus Serum.—The minor plaintiff on May 26, 1936 fell on a stick which penetrated his thigh to the extent of about 5 inches (13 cm.). He was taken for treatment to the defendant physician, who described the wound as "entirely subcutaneous . . . not deep" and "just under the skin." The defendant cleansed the site of the wound externally, swabbed it "all the way to the bottom" with alcohol and also with tincture of iodine, inserted a loose gauze drain which had been soaked with alcohol and then applied a sterile dressing. This treatment was repeated daily for the next three days, during which time the defendant detected no sign of the onset of any infection of a serious nature and considered the condition of the wound to be "very satisfactory." The defendant did not see the plaintiff on the fifth day but on the sixth he administered the same treatment as before. On that occasion the child's stepfather told the defendant that the boy had complained that his jaws hurt him and were stiff. After an examination the defendant said that the boy's jaws were perfectly normal and that there was no rigidity of his neck muscles. Early the next morning the defendant was summoned to the boy's home, found him suffering from a "definite stiffness of the masseter muscle and some of his neck," and took him at once to a hospital. After another physician had seen the patient in his presence, the defendant left the hospital and never again saw the boy professionally. Dr. Shallow, under whose care the child was placed at the hospital, discovered that the boy was suffering from tetanus, or lockjaw, and from an infection of his leg, that his neck was stiff, that he was unable to open his mouth more than half an inch and that he had "generalized rigidity of all the voluntary muscles." Dr. Shallow caused 15,000 units of tetanus antitoxin to be injected and a few hours later did a débridement, excising the infected tract and thus removing "all of the devitalized tissue and some of the sound tissue." Twenty-three days later he performed a "closure" operation to bring the gaping edges of the wound together. The boy stayed in the hospital for about four weeks, during which time he received a total of 750,000 units of antitetanus serum. The boy, by his next friend and mother, and his mother in her own right sued the defendant physician for malpractice. The jury returned a verdict for the physician but the trial court granted a motion for a new trial, and the physician appealed to the Supreme Court of Pennsylvania.

The Supreme Court could not agree with the defendant's contention that the trial court should have directed a verdict in his favor because there was no issue of fact for the jury to decide. The question for determination, said the Supreme Court, was whether or not the plaintiffs had made out a *prima facie* case of malpractice. After discussing many cases defining malpractice, the court quoted with approval from Herzog on Medical Jurisprudence, p. 153, sec. 180, as follows:

If a physician, in the course of his practice, is guilty of any dereliction of duty toward one of his patients, or fails to use proper skill and knowledge in the diagnosis or treatment of a patient's ailment, he is guilty of malpractice. . . . Where there are various recognized methods of treatment the physician is at liberty to follow the one he thinks best, and is not liable for malpractice because expert witnesses give their . . . method would have been preferable. . . .

Departure from approved methods in use will render a physician liable if he injures the patient, no matter how good his intention may have been, so a physician must be very careful in adopting a new method of treatment or one which is not recognized by the school of medicine to which he belongs, for if his treatment should prove injurious to the patient he would be liable for not having used recognized methods.

At the hearing before the trial court, continued the court, the expert witnesses for both the plaintiffs and the defendant admitted that the proper treatment for a punctured wound required that it be incised to its depth and thoroughly drained and that a subcutaneous injection of tetanus antitoxin be administered to the patient. From there on, however, the evidence was in irreconcilable conflict. Five physicians who testified for the plaintiffs said that the boy's injury was a punctured wound and indicated that the defendant was negligent in failing to administer antitetanus serum. Nine physicians who had been called by the defendant, however, testified that a substantial group of physicians in good standing in Philadelphia in May 1936 would have rendered the same treatment which the defendant had administered in this case and that such was "a reasonably successful" treatment. If, said the court, the boy's wound was a punctured wound, the medical testimony was in accord that the treatment administered by the defendant would not be proper. If it was not a punctured wound, the medical testimony was in conflict as to whether or not the defendant's treatment was in accord with good medical practice. The court held that the evidence showed that the defendant had not used the approved method of treating a punctured wound and so the plaintiffs had made out a *prima facie* case if there was also evidence that the boy's wound was a punctured wound. In the opinion of the court the physicians who testified for the plaintiffs supplied that evidence. The size of the wound, 5 inches in depth with a diameter of $\frac{1}{2}$ inch, indicated that it was a punctured wound. The defendant's own description of the wound as "a punctured wound and shallow, being next to the surface, and just under the skin, about five inches in length," fits perfectly into the following medical definition of a punctured wound, in Christopher's "Minor Surgery," ed. 2, p. 30:

Punctured wounds are those in which the orifice is relatively small compared to the depth of the wound. . . . The entrance rapidly seals over and the depths of the wound which have been invaded by the nail or missile are excellent soil for anaerobic organisms.

In the judgment of the court the question as to whether or not the boy's wound was a punctured one should have been submitted to the jury with proper instructions.

The defendant also contended that there was no evidence showing a causal connection between his malpractice and the plaintiff's lockjaw. The court held, however, that the medical testimony clearly supported the inference that an earlier administration of the antitetanus serum, at the time the defendant first attended the boy, would have averted the onset of lockjaw. The successful treatment of this patient in the hospital with tetanus antitoxin, although administered belatedly, proved its potency. The court concluded, therefore, that the granting of a new trial was proper and so it affirmed the order of the lower court.—*Hodgson v. Bigelow*, 7 A. (2d) 338 (Pa., 1939).

Society Proceedings

COMING MEETINGS

Annual Congress on Medical Education and Licensure, Chicago, Feb. 17-18. Dr. W. D. Cutter, 535 North Dearborn St., Chicago, Secretary.

American Association of Anatomists, Chicago, Apr. 9-11. Dr. E. R. Clark, Dept. of Anatomy, University of Pennsylvania School of Medicine, Philadelphia, Secretary.

American Association of Pathologists and Bacteriologists, New York, Apr. 10-11. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Dermatological Association, New Orleans, Apr. 7-11. Dr. Harry R. Foerster, 208 East Wisconsin Ave., Milwaukee, Secretary.

American Orthopsychiatric Association, New York, Feb. 20-22. Dr. Norville C. La Mar, 149 East 73d Street, New York, Secretary.

Central Surgical Association, Ann Arbor, Mich., Feb. 28-March 1. Dr. George M. Curtis, Ohio State University, Columbus, Ohio, Secretary.

Pacific Coast Surgical Association, San Francisco, Feb. 22. Dr. H. Glenn Bell, University of California, San Francisco, Secretary.

Tennessee State Medical Association, Nashville, Tenn., Mar. 22-24. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.

Northern Tri-State Medical Association, Tiffin, Ohio, Apr. 8. Dr. E. Benjamin Gillette, 320 Michigan St., Toledo, Ohio, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

20:655-802 (Dec.) 1940

- Nomenclature and Description of Electrocardiogram. H. E. B. Pardee, New York.—p. 655.
- Use of Cathode Ray for Recording Heart Sounds and Vibrations: I. Studies on Normal Heart. W. B. Kountz, A. S. Gilson and J. R. Smith, with technical assistance of R. E. Sturm, St. Louis.—p. 667.
- Morphologic Study of Cardiac Conduction System in Ungulates, Dog and Man: Part II. Purkinje System. D. J. Glomset and Anna T. A. Glomset, Des Moines, Iowa.—p. 677.
- Electrocardiographic Changes Following Metrazol-Induced Convulsions. E. M. Kline, J. L. Fetterman and G. H. Williams Jr., Cleveland.—p. 702.
- Peripheral Blood Flow in Hyperthyroidism. H. J. Stewart and W. F. Evans, New York.—p. 715.
- Circulatory Reactions in Gastrointestinal Tract Elicited by Localized Cutaneous Stimulation. A. Kuntz and L. A. Haselwood, St. Louis.—p. 743.
- Applications of Photoelectric Plethysmography in Peripheral Vascular Disease. A. B. Hertzman and J. B. Dillon, St. Louis.—p. 750.

American Journal of Medical Sciences, Philadelphia

200:717-860 (Dec.) 1940

- Arteriosclerosis Obliterans: Clinical and Pathologic Study. E. A. Hines Jr. and N. W. Barker, Rochester, Minn.—p. 717.
- Heart Size and Experimental Atheromatosis in Rabbit. L. N. Katz, A. Sanders, R. S. Megibow and S. Carlen, Chicago.—p. 731.
- Methionine and Cystine, Specific Protein Factors Preventing Chloroform Liver Injury in Protein Depleted Dogs. L. L. Miller, J. F. Ross and G. H. Whipple, Rochester, N. Y.—p. 739.
- Clinical Studies of Experimental Human Vitamin B Complex Deficiency. K. O. Elsom, F. H. Lewy and G. W. Heublein, Philadelphia.—p. 757.
- *Treatment of Amyotrophic Lateral Sclerosis with Vitamin E (Tocopherols). I. S. Wechsler, New York.—p. 765.
- *Sulfathiazole in Treatment of Pneumococcal Pneumonia: Comparative Study Utilizing Sulfapyridine Therapy. I. F. Volini, R. O. Levitt and H. B. O'Neil, Chicago.—p. 778.
- Sulfathiazole Treatment in Respiratory Infections. D. S. Pepper and G. C. Han, Philadelphia.—p. 784.
- Sulfathiazole in Blood and Urine. F. W. Sunderman and D. S. Pepper, with assistance of Eleanor Benditt, Philadelphia.—p. 790.
- *Objective Esophageal Changes Due to Psychic Factors: Esophagoscopy Study with Report of Thirteen Cases. W. B. Faulkner Jr., San Francisco.—p. 796.
- *Roentgen Ray Therapy in Treatment of Herpes Zoster. P. McCombs, A. Tuggle and Connie M. Guion, New York.—p. 803.
- Blood Studies in Malaria: Genesis of Blood Cells in Relation to Treatment with Quinine. G. Vryonis, Nashville, Tenn.—p. 809.
- Maintenance of Sedimentation Rate of Erythrocytes in Vitro in Cases of Malignant Tumors and Hodgkin's Disease. H. Feldman, Brooklyn.—p. 820.

Vitamin E for Amyotrophic Lateral Sclerosis.—Amyotrophic lateral sclerosis has been regarded invariably as progressive and ultimately fatal from bulbar paralysis within from two to three years. Wechsler reports 20 cases in which treatment with tocopherol acetate was given. The results seem to confirm his preliminary report of 1940 regarding the curative effects of vitamin E. Treatment thus far consisted of 30 and later of 50 mg. daily of Ephynal or alpha-tocopherol acetate by mouth. Some patients required from 100 to 200 mg. of the preparation. About one half of the patients had 50 mg. of tocopherol in oil injected daily intramuscularly. All patients received food rich in vitamin E: lettuce, kale, whole wheat bread, coarse cereals, butter, bananas, fresh corn, fresh peas and beans, yolks of eggs and fat beef. Because vitamin E is fat soluble, two 5 grain (0.32 Gm.) pills of bile salts were given daily. In 2 instances discontinuing the vitamin brought about a relapse. This was promptly reversed when vitamin E was readministered. Only two such experiments were purposely undertaken. Eleven of the 20 patients showed varying degrees of improvement; 2 seem to have recovered, 4 showed

marked improvement and 5 were moderately improved. Three patients may be said to have the disease arrested. Two patients with an advanced stage of the disease and bulbar signs died; 1 of these began to show improvement in his bulbar signs but died of pneumonia. At necropsy, cancer of the pancreas was found. The other patient died of bulbar involvement. Two patients have definitely grown worse and, of the remaining 2, 1 is worse after initial improvement and the other is slightly worse. The fibrillations are apt to disappear first, thus indicating a recession in the activity of the disease process. The patients who recovered showed fairly rapid improvement. It appears that treatment with the synthetic or the natural vitamin E must be permanent, unless the cause of failure to absorb (of which there is some evidence) is discovered and removed. Why, in view of the fact that natural vitamin E is so prevalent, there is failure of absorption and why if there is failure it occurs only in certain persons cannot be answered at this time. Two facts appear certain: vitamin E deficiency, probably of the alphas-tocopherol factor, is one cause of amyotrophic lateral sclerosis and administration of vitamin E may be a specific treatment. The studies suggest the possible treatment of other diseases of the nervous system which for want of better knowledge are called degenerative. It may be that some "degenerative" disease will be found to result from the privation of specific vitamins, though other factors may play additional roles; for example, the absence of vitamin B₆ in "degenerative" paralysis agitans not of the arteriosclerotic or inflammatory types.

Sulfathiazole for Pneumococcal Pneumonia.—Volini and his associates treated 169 patients having pneumococcal pneumonia with sulfathiazole by mouth. There were 9 deaths, a 5.3 per cent mortality. A control series in which sulfapyridine and serum combined were used showed a mortality of 4.2 per cent. The mortality in the bacteremic group was higher with sulfapyridine treatment. Sulfathiazole is apparently as effective as sulfapyridine. Sulfapyridine appeared more effective in type I and III infections, whereas sulfathiazole produced better results in type II and VII infections. Nausea, vomiting and the other common toxic manifestations of sulfapyridine therapy were much less frequent with sulfathiazole. Drug fever and especially the papulonodular eruption with conjunctivitis were the severe toxic manifestations of sulfathiazole medication. The blood concentration level varied considerably in the same patient on a maintenance dose of 1 Gm. every four hours.

Esophageal Changes Due to Psychic Factors.—Faulkner demonstrated that the esophagus undergoes definite changes in response to emotional upsets. This was observed with an esophagoscope in 13 patients seeking relief for symptoms ascribed to one or more of the organic systems. All the patients were referred, some because of esophageal complaints and others because of the author's interest in the study. Disturbing thoughts and emotions produced esophageal spasm. The spasm increased and the esophageal lumen narrowed or closed by suggestions calling forth destructive emotions, such as grief, anger, anxiety, apprehension, fear and spiritual imprisonment. The spasm relaxed and the lumen widened on proposals eliciting happiness, elation, enthusiasm, contentment and security. The esophageal reaction and alteration in the spasm was directly related to the patient's personal interest in the problem; conversely, situations in which the patient had no vital interest were incapable of eliciting an esophageal reflex. In addition to causing uniform spasm of the esophagus, the author believes that disturbing emotional influences are underlying factors in certain esophageal strictures, cardiospasm and so-called idiopathic pressure diverticula of the esophagus.

Roentgen Therapy for Herpes Zoster.—McCombs and his colleagues obtained success with roentgen rays in the treatment of herpes zoster. Of their 123 patients, 72 were given roentgen therapy. Of the 51 in the control group, 14 received injections of solution of posterior pituitary and others were given sedatives and salves or were merely observed to determine the duration and severity of the disease. Their present method of treatment is to give the patient 200 roentgens daily or every other day, for five or six treatments, using 200 kilovolts through 1 mm. of copper and 1 mm. of aluminum filter

at a distance of 50 cm. in a 6 by 15 cm. portal directly over the spinal root ganglions of the nerves involved. Of the patients treated 21 had had their symptoms for from one to three days, 23 for four to seven days, 11 for from eight to fourteen days, 4 for from fifteen to twenty-eight days and the remaining 13 had had the herpetic syndrome for more than a month. Of the patients treated with roentgen rays 46 per cent were cured within eight to fourteen days, whereas only 16 per cent of the control group were relieved within this period. It required from twenty-eight to sixty days to cure 35 per cent of the latter group, whereas 56 per cent of the patients treated with roentgen rays were cured within this time; 9 required more than a month for cure. Of these only 1 was seen within thirty days of the onset of the disease, the others in from one to eight months after the onset of symptoms. Thirty-nine, or 89 per cent, of the 44 patients treated within the first seven days of the disease were completely relieved; 2 were improved and 3 received no benefit. Of the 11 treated between the eighth and the fourteenth day of onset, 8 were relieved completely, 2 were partially benefited and 1 reported failure. Of the 4 treated between the fifteenth and the twenty-eighth day, 2 were cured and 2 reported failure. Of the 13 treated after the twenty-ninth day, 7 were cured, 1 was partially benefited and 5 obtained no relief. Herpes zoster must be treated promptly, as the cures in the first seven days were 89 per cent as compared to only 50 per cent after fourteen days. Symptoms may be exaggerated after the first treatment, and therefore patients must be warned of this reaction and advised that improvement will follow subsequent treatments. Patients may want to desist from roentgen therapy after a few treatments because pain is relieved and the local lesions do not show further spread. It is important to insist on the full course, as after a brief interval an occasional insufficiently treated patient has recurrence of pain and paresthesias. These were relieved by further treatment.

Archives of Neurology and Psychiatry, Chicago

45:1-198 (Jan.) 1941

- Petechial Hemorrhages of Brain Experimentally Produced in Rats by Concussion. W. F. Schaller, K. Tamaki and H. W. Newman, San Francisco.—p. 1.
- *Arsenic as Possible Cause of Subacute Encephalomyelitis: Correlation of Chemical, Clinical and Histologic Observations. A. D. Ecker and J. W. Kernohan, Rochester, Minn.—p. 24.
- Distribution of Nerve Terminals (Boutons) in Human Spinal Cord: Quantitative Studies. J. Minckler, Omaha.—p. 44.
- Changes in Brain in Alcoholism. L. D. Stevenson, Lillian E. McGowan and Anna M. Allen, New York.—p. 56.
- *Studies in Diseases of Muscle: IX. Effect of Quinine and Prostigmine Methylsulfate on Muscular Rigidity in Paralysis Agitans. A. T. Milhorat, New York.—p. 74.
- Seeping Intracranial Aneurysm Simulating Neoplasm: Syndrome of Corpus Callosum. W. H. Sweet, Chicago.—p. 86.
- Representation of Sympathetic and Parasympathetic Nervous Systems in Forebrain of Cat. H. B. Carlson, E. Gellhorn and C. W. Darrow, Chicago.—p. 105.
- Cerebral Swelling and Edema Associated with Cerebral Tumor: Histogenetic and Histopathologic Study. I. Scheinker, Paris, France.—p. 117.
- Mescaline Hallucinations in Artists. W. S. Maclay and E. Guttmann, London, England.—p. 130.
- Connections of Medial Geniculate Body in Cat. H. W. Ades, Emory University, Ga.—p. 138.
- Rhythmic Myoclonus: Clinical Report of Six Cases. J. P. Dobson and H. A. Riley, New York.—p. 145.
- Juvenile Huntington's Chorea. E. I. Falstein and T. T. Stone, Chicago.—p. 151.
- Clinical from
- Profound Changes in Child During Recovery from Encephalomyelitis. E. I. Falstein and Katharine Knox Cutts, East Providence, R. I.—p. 151.

Arsenic and Subacute Encephalomyelitis.—As considerable arsenic was found in most brains from subacute fatal cases of encephalomyelitis, Ecker and Kernohan studied the possible significance of this observation by correlating the clinical, pathologic and chemical features of the cases. The features of fatal encephalomyelitis frequently appear like those of a continuous action of some toxic agent. It is probable that many persons who are exposed continuously to arsenic from a multitude of legitimate everyday sources may be slowly poisoned because of its cumulative effects, making "chemical encephalitis" not only possible but probably not rare. The symptoms of arsenism are primarily headache and physical and mental fatigue, probably with accompanying dizziness,

restlessness, excitability and mental dulness, a manifestation of cerebral symptoms. The authors studied three series of cases; 13 cases of known arsenical poisoning, a miscellaneous main control group of 24 cases listed in the neuropathologic files under the heading of "encephalitis" (the brains of which were tested for the presence of arsenic; 15 contained no arsenic and 9 from 0.02 to 0.05 mg. per hundred grams of tissue) and 12 cases in which more than 0.1 mg. of arsenic per hundred grams of tissue was found and this was considered significant. As a further control the brains in 6 fatal cases of malignant hypertension were studied and less than 0.02 mg. of arsenic per hundred grams of brain tissue was found in each instance. This fact is strong evidence against the hypothesis that arsenic is deposited in the brain in all cases of chronic cerebral damage. This view is also substantiated by the 24 other instances of long-standing cerebral disease which comprise the main control group. The 13 cases of known arsenical poisoning and the 12 with more than 0.1 mg. of arsenic per hundred grams of brain tissue presented precisely the same diffuse cerebral symptoms (fatigue, headache, vertigo, drowsiness and impairment of mental activity) which constitute a syndrome that is summarized as "progressive diffuse cerebral failure." The clinical, pathologic and chemical observations that concern the 12 cases are consistent with the hypothesis that they represent instances of chronic arsenical poisoning. The abnormally large amounts of arsenic found in the brains do not in themselves imply that arsenic is the cause of subacute encephalomyelitis, as it is possible that the arsenic ingested by most Americans might be deposited at a locus minoris resistentiae in greatest concentration. To consider this possibility, brains in 6 cases of malignant hypertension were studied. They resembled the cases of encephalitis in duration, symptoms and pathologic alterations. The fact that an appreciable amount of arsenic was not found in any of these brains is strong evidence against the likelihood that arsenic is deposited in all brains damaged over a period of months. Further evidence for or against the hypothesis can be obtained by microscopic studies of brains from recognized cases of chronic arsenism and by determining the arsenic content in the excreta and tissues, especially the nervous system and hair, in other cases of subacute or chronic meningoencephalomyelitis.

Quinine and Prostigmine Methylsulfate in Paralysis Agitans.—Milhorat observed effects of quinine and prostigmine methylsulfate on the muscular rigidity of 8 patients with paralysis agitans. Two of the patients had only slight stiffness of a few groups of muscles, 4 had moderate rigidity of two or more extremities and the stiffness of 2 involved most of the voluntary musculature. Quinine was administered for periods of from two weeks to several months, with several alternate periods of control and of quinine administration. The dose in most instances was 0.3 Gm. of quinine sulfate orally two or three times a day. Six of the patients were receiving and continued to receive scopolamine daily. The muscular rigidity of 2 patients was much decreased. The muscular pain of both patients and the rigidity of the jaw muscles of 1, which had resulted in continual drooling and in malnutrition, were relieved considerably. Quinine was more effective for muscular pain than acetylsalicylic acid. The effect of quinine on tremor was slight in 1 patient and was not demonstrable in the other. Moderate reduction of muscular stiffness of 2 patients was observed; in 1 of these the muscular rigidity involved most of the voluntary muscles. Both patients complained of muscular pain, which was much decreased after taking quinine. Tremor was decreased slightly in the patient with the advanced stage of the disease but was unaffected in the other. In 4 patients the effect was absent or only slight. In 2 of these muscular rigidity was slight and in 2 moderate. Patients in whom quinine had a definite effect continued to derive benefit for from one to four months, after which quinine had a decreasing effect. In some instances the effect diminished until it was practically absent. After the drug was discontinued for a few weeks its effect again became evident. The effect of prostigmine methylsulfate on muscular rigidity was studied on 4 patients. The usual dose of the drug was 1.5 mg., given subcutaneously. Usually its administration was followed, within fifteen minutes, by a considerable increase in rigidity and tremor. In 1 patient with symptoms of only moderate severity the clinical picture rapidly developed into one resembling a far advanced stage.

Muscular rigidity of cogwheel character became severe in all extremities, and tremor which had previously been moderate became violent. The patient experienced diplopia. In another patient cogwheel rigidity developed in an extremity which was previously unaffected. Atropine abolished the effects of prostigmine methylsulfate and within ten minutes the symptoms returned to their previous status. In patients with congenital myotonia and atrophic myotonia an increase in the inability of the muscles to relax was observed after prostigmine methylsulfate caused an initial forceful contraction. The effect of prostigmine methylsulfate on muscular rigidity of paralysis agitans is not related to any unusual activity of the cholinesterase in this condition. It is probable that the effect of quinine on muscular function in cases of "myotonia" and paralysis agitans is the result of the antagonistic action of the drug to cholinergic nerve stimulation.

Bulletin of Los Angeles Neurological Society

5:185-234 (Dec.) 1940

*Change of Personality as Sequela of Acute Carbon Monoxide Poisoning: Report of Four Cases, One with Autopsy. J. M. Nielsen and S. D. Ingham, Los Angeles.—p. 185.

Arhinencephaly with Associated Agenesis of Corpus Callosum and Other Anomalies: Report of Two Cases. H. Shryock and R. S. Knighton, Los Angeles.—p. 192.

Syndromes Indicative of Benign Intracranial Complications of Otitis Media and Mastoiditis. C. B. Courville and J. M. Nielsen, Los Angeles.—p. 202.

Amyotonia Congenita (Oppenheim's Disease): Report of Case with Autopsy Findings. Lucile R. Anderson and D. L. Reeves, Los Angeles.—p. 210.

Intracranial Tumors Occurring in Three Members of a Family. G. H. Patterson and F. M. Anderson, Los Angeles.—p. 218.

Personality Changes After Carbon Monoxide Poisoning.—Nielsen and Ingham cite 4 cases of carbon monoxide poisoning in which there were unmistakable signs of basal ganglion involvement. The first two poisonings followed suicidal attempts, one was accidental and the cause of the fourth is not mentioned. After the acute episode the patients recovered to a variable degree, then relapsed and the 3 who have survived have continued in a state of complete loss of affect. They are inattentive, disinterested, without initiative or sense of responsibility and completely disabled for work. Parkinsonian symptoms are in evidence. The brain in the fatal case showed bilateral necrosis of the globus pallidus (which is in keeping with such poisoning) and also gross lesions in the white matter and cortex. In this case the initial coma of the asphyxia was followed by improvement, although apathy and loss of emotional reaction remained. There was a relapse two weeks after the initial coma, and death occurred one month after the acute episode.

California and Western Medicine, San Francisco

53:253-310 (Dec.) 1940

Surgical Management of Carcinoma of Colon. V. C. Hunt, Los Angeles.—p. 258.

Goiter in Northern California: Survey of 175 Thyroid Operations. A. H. Newton, Yreka.—p. 261.

Interpretation of Laboratory Examinations in Diagnosis of Infectious Diseases. C. S. Keefer, Boston.—p. 263.

Psychosis Due to Sulfanilamide. R. B. Toller, Imola.—p. 266.

Injuries to Nerves During Anesthesia. Dorothy A. Wood, San Francisco.—p. 267.

Conditioned Reflex Therapy of Alcoholic Addiction: Specificity of Conditioning Against Chronic Alcoholism. F. Lemere and W. L. Voegtlin, Seattle.—p. 268.

Indiana State Medical Assn. Journal, Indianapolis

33:645-746 (Dec.) 1940

Theory and Practice of Therapeutics in Allergy. E. L. Keeney, Baltimore.—p. 645.

Diagnostic Significance of Pain in Abdomen. J. Abell, Louisville, Ky.—p. 657.

Common Physical Disorders of Children: Their Nosologic Orientation and Ways of Viewing Them. N. C. La Mar, New York.—p. 660.

Influence of Tonillectomy on Progress of Rheumatic Heart Disease. L. T. Meiks, Indianapolis.—p. 666.

Physical Agents in Treatment of Fractures. J. S. Coulter, Chicago.—p. 670.

*Recurrent Hyperthyroidism. R. L. Hane, Fort Wayne.—p. 675.

Recurrent Hyperthyroidism.—Hane defines true recurrent hyperthyroidism as that which arises after a postoperative period free of symptoms, from the very nature of the disease itself, while persistent hyperthyroidism is a reflection on the technic employed. Recurrent hyperthyroidism is largely concerned with diffusely hyperplastic or exophthalmic types of goiter. When

secondary symptoms appear after a nodular or adenomatous goiter has been removed, either the thyroid remnants left have been of the hyperplastic type or small adenomas have been left which later grow and cause excessive secretion. Some workers explain all recurrences as due to inadequate surgery. Inadequate exposure of the lateral lobes of the thyroid, failure to search for retrotracheal projections and pyramidal lobes or ultraconservatism in removal of tissue is often productive of incomplete relief of symptoms. The author reviews cases from St. Joseph Hospital in which treatment tends to be conservative; many patients are operated on only after irradiation and medical measures have failed. From January 1925 to July 1940 there were 209 patients treated by subtotal thyroidectomy; there were 91 adenomatous goiters, 104 diffusely hyperplastic or exophthalmic goiters, 6 simple colloid goiters, 5 carcinomas and 1 struma lymphomatosa (Hashimoto). There were 11 deaths, giving a gross mortality rate of 5.26 per cent. Eight of the patients were being operated on the second time and 1 the third time. Of these 9 (4.3 per cent) patients, 5 had goiters of the diffusely hyperplastic or exophthalmic type and 4 of the adenomatous type. The intervals between the primary and secondary operations in the adenomatous goiters were ten, twelve, fourteen and nineteen years respectively. Of the diffusely hyperplastic or exophthalmic goiters requiring secondary surgery, 2 should be classified as persistent hyperthyroidism; in 1 lobectomy and double ligation preceded the secondary operation by five years; in the other hemorrhage encountered at surgery prevented satisfactory completion of the initial operation. There were three true recurrences of exophthalmic goiter. It seems that a few patients with exophthalmic goiter seem destined to recurrent symptoms and thus parallel the experience of certain patients with duodenal ulcer who continue to have recurrent ulcers in spite of increasingly radical surgery. A special study was made of the 162 patients operated on from 1925 to 1935 inclusive. Questionnaires were sent inquiring as to the appearance of symptoms since surgical intervention and the necessity of further operation. There were 6 deaths among these patients, a mortality rate of 3.7 per cent. It was possible to trace 122 of the 162 patients; 62 who had diffusely hyperplastic or exophthalmic goiter, 56 with nodular or adenomatous goiter, 2 with colloid goiter and 2 with carcinomas. One patient with a typical nodular goiter with mild hyperthyroidism had required a second operation. Ten years had elapsed between the two operations. There were 7 additional patients who reported either a return of symptoms or incomplete relief; 5 of these had goiters of the exophthalmic type, 1 an adenomatous goiter and 1 a carcinoma. Of the exophthalmic goiters giving further symptoms 2, or 3.2 per cent, can definitely be considered true recurrent hyperthyroidism and 3, or 4.8 per cent, persistent hyperthyroidism. Four of the 5 patients with exophthalmic goiters who had further symptoms have been treated conservatively and have improved. The postoperative management of these patients should include regulation of future activities. If any importance is to be placed on emotional or nervous drive as a primary etiologic factor in hyperthyroidism, it is only reasonable to eliminate it as far as possible. Any failure of normal postoperative improvement calls for increased rest and, if necessary, some form of sedation. When mild recurrent symptoms are manifest, a regimen of iodine medication, rest and sedatives is continued. Roentgen therapy may be tried and, if ineffective, further surgical intervention should be considered.

Journal of Pharmacology & Exper. Therap., Baltimore

70:323-466 (Dec.) 1940. Partial Index

Alkyl Nitrites: VI. Contribution to Mechanism of Action of Organic Nitrites. J. C. Krantz Jr., C. J. Carr, S. E. Forman and Nellie Conc, Baltimore.—p. 323.

Sensitizing Effect of Thiamine for Acetylcholine. J. Byer and K. Harpudder, New York.—p. 328.

Cardiac Action of Derivatives of Strophanthidin and Cymaridin. K. K. Chen and R. C. Elderfield, New York.—p. 338.

Effects of Continued Administration of Sulfanilamide on Blood. A. P. Richardson, San Francisco.—p. 370.

Source of Cerebrospinal Fluid: Distribution of Bromide and Iodide Throughout Central Nervous System. G. B. Wallace and B. E. Brodie, with assistance of H. Hecht and J. Chlilnik, New York.—p. 418.

Biologic Assay of Oxytocic Activity of Pituitary Extract (Posterior Lobe). C. A. Morrell, M. G. Allmark and W. M. Bachman, Ottawa, Ont., Canada.—p. 440.

Morphine-Atropine Antagonism on Colon Motility in Dog. H. F. Adler and A. C. Ivy, Chicago.—p. 454.

New Jersey Medical Society Journal, Trenton

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- Roseola Infantum. R. E. Jennings, East Orange.—p. 577.
 Newer Treatment of Parkinson's Syndrome. S. Alexander and S. F. Alexander, Park Ridge.—p. 580.
 Leprosy: Case Report. J. J. Greengrass, Paterson, and I. Silverman, Clifton.—p. 583.
 Low Temperature Treatment of Malignancy. N. M. Alter, Jersey City.—p. 586.
 Acute Appendicitis Problem from Surgical Standpoint. G. P. Muller, Philadelphia.—p. 587.
 Syphilis in Children. I. Zweigel, Newark.—p. 592.
 Some Newer Concepts in the Fight Against Tuberculosis. H. R. Edwards, New York.—p. 597.
 Pregnancy and Tuberculosis. W. J. Carrington, Atlantic City.—p. 602.

North Carolina Medical Journal, Winston-Salem

1:631-690 (Dec.) 1940

- Sulfapyridine and Sulfathiazole in Treatment of Pneumonia. D. S. Pepper, Philadelphia.—p. 631.
 The Physician's Duties Under the Selective Service Act. J. H. Sturgeon, Fort Bragg.—p. 636.
 Report on Trend of Mental Disease in the Western State Hospital District of North Carolina. F. B. Watkins, Morganton.—p. 639.
 Policies and Needs of the State Hospital at Morganton. R. H. Long and W. E. Brown, Morganton.—p. 643.
 Bronchoscopy in Bronchopulmonary Diseases. M. D. Bonner, Jamestown.—p. 646.
 Our Efforts to Reduce the Maternal Morbidity from Childbearing. T. L. Lee, Kinston.—p. 654.
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 Recognition and Management of Some Common Rectal Conditions. J. F. Robertson, Wilmington.—p. 662.
 Evaluation of Result of Tonsillectomy and Adenoidectomy. T. C. Kerns, Durham.—p. 666.
 Emergency Treatment of Acute Heart Failure in General Practice. R. D. McMillan, Red Springs.—p. 668.

Northwest Medicine, Seattle

39:435-480 (Dec.) 1940

- *End Results in Cancer of Large Bowel. R. B. Cattell, Boston.—p. 438.
 Carcinoma of Stomach and Intestine. S. F. Herrmann, Tacoma, Wash.—p. 441.
 Malignant Tumors of Head and Neck: Problems in Diagnosis. S. T. Cantril, Seattle.—p. 444.
 Carcinoma of Cervix. M. Harris, E. A. Addington, G. J. Bracher, Spokane, Wash., and C. B. Ward, Seattle.—p. 447.
 Newer Drugs in Treatment of Arthritis. K. K. Sherwood, Seattle.—p. 452.

End Results in Intestinal Cancer.—Cattell analyzes the end results of 270 patients with cancer of the large intestine who had been observed for from five to nine years. The cancer of 172 was located in the rectum or rectosigmoid, and of 98 in the colon or sigmoid colon. The operability rate in the rectal cases was 57 per cent (98 resections) and for the colon cases 55 per cent (54 resections). All patients who refused operation, whether favorable or unfavorable, are included among the nonresected group. Some of these had later resections elsewhere. A modified Mikulicz resection was performed on 51 of the 54 patients with colon cancer; in 3 a preliminary anastomosis was done around the lesion, followed by resection. There were 8 operative deaths among the 51 resections. Twenty-seven patients showed no evidence of recurrence for from five to nine years after operation, 14 patients are known to be dead of recurrence, 1 died one year after operation of pneumonia, without recurrence, and no observation of 1 was possible. There were no deaths among the 3 patients having two stage resections. Two were free of recurrence when observed five years after operation, and 1 died of recurrence four years after operation. Thirty of the 44 patients with carcinoma of the colon in whom resection could not be done either had colostomy or anastomosis around the lesion. There were 4 operative deaths, and only 2 patients were known to live more than one year after operation. Six had explorations only, and no operation was performed on 8. All these patients were dead within six months. Four types of operation (two stage abdominoperineal resection for 55, one stage abdominoperineal resection for 7, anterior or abdominal resection for 12 and perineal or posterior resection for 24) were employed for 98 of the patients having carcinoma of the rectosigmoid or rectum. The composite end results are 14.3 per cent operative mortality, 37.8 per cent of deaths from recurrence, in an additional 4.1 per cent the result was either unknown or

death occurred from another cause, and 43.8 per cent showed no recurrence for from five to nine years. Of the 74 patients with rectosigmoid and rectal cancer who did not have resection, simple colostomy was done in 50; 32 of them died in one year or less and 6 died during the second postoperative year. Seven of the remaining patients had only exploratory procedures and 17 had no operation or refused operation. Of the 270 patients, 130 of those having resections survived the operation and 72, or 55.4 per cent of them, were free from recurrence. Radical resection is recommended for all patients having carcinoma of the large intestine.

Pennsylvania Medical Journal, Harrisburg

44:257-416 (Dec.) 1940

- Some Problems Associated with Surgery of Biliary Tract. H. K. Gray, Rochester, Minn.—p. 269.
 Cerebral Complications Following Acute Infectious Diseases: Therapeutic Value of Convalescent Serum. A. Gordon, Philadelphia.—p. 274.
 Paroxysmal Rapid Heart Action: Differential Diagnosis and Treatment. W. J. Stainsby, Danville.—p. 279.
 Clinical and Physiologic Investigation of Air Conditioning. M. B. Ferderber, Pittsburgh.—p. 283.
 Painful Shoulder: Diagnosis and Treatment. L. Kaplan, Philadelphia.—p. 289.
 Zinc Oxide Oil of Cloves Paste in Treatment of Osteomyelitis. J. J. McAleese, Pittsburgh.—p. 298.
 Experience with Blood Transfusions at the Blood Bank of the Philadelphia General Hospital. I. S. Hucleski, Philadelphia.—p. 301.
 Suppression of Lactation by Stilbestrol. C. W. Mucklé, Philadelphia.—p. 305.

Quarterly J. of Studies on Alcohol, New Haven, Conn.

1:413-604 (Dec.) 1940

- Alcohol as Factor in Traffic Accidents. D. S. Berry, Chicago.—p. 413.
 Mortality from Alcoholism in the United States. C. F. Schmid, Seattle.—p. 432.
 *Note on Incidence of Syphilis in Alcoholics. L. L. Orenstein and W. Goldfarb, New York.—p. 442.
 Pharmacopeial Definition and Description of Whisky and Their Inadequacies. H. W. Haggard, New Haven, Conn., and H. B. Haag, Richmond, Va.—p. 444.
 Observations on Chronic Alcoholism and Cirrhosis of Liver. R. S. Boles and R. S. Crew, Philadelphia.—p. 464.
 Blood Volume Studies in Acute Alcoholism. W. M. Nicholson and H. M. Taylor, Durham, N. C.—p. 472.
 Alcohol Metabolism in Artificial Fever. P. L. Ewing, Chicago.—p. 483.
 *Conditioned Reflex Therapy of Alcoholic Addiction: III. Evaluation of Present Results in Light of Previous Experiences with This Method. W. L. Voegtlin, F. Lemere and W. R. Broz, Seattle.—p. 501.
 Vitamin Deficiencies and Liver Cirrhosis in Alcoholism: Introduction and Part I. N. Jolliffe, New York.—p. 517.
 Uniform Control and Taxation of Alcoholic Beverages. S. Berkshire, Washington, D. C.—p. 558.

Syphilis and Alcoholism.—In order to determine the incidence of syphilis among alcohol addicts, Orenstein and Goldfarb obtained a detailed history of venereal infection or treatment and a blood Wassermann test on discharge of 1,001 consecutive admissions to the alcohol wards of Bellevue Hospital. The percentage of syphilitic infection among 680 white male patients was 3.3, and among the 100 Negro males it was 30. There were evidences of syphilis in 8.5 per cent of the white female patients and in 55 per cent of the Negro women. This is in contrast to the incidence of syphilitic infection among the white population, which has been variously reported from 1 to 4 per cent and up to 15 per cent for Negroes. The authors believe that the especially high incidence of syphilitic infection among the women is related to the fact that they are exposed to sexual aggressions while intoxicated.

Conditioned Reflex Therapy for Alcohol Addiction.—According to Voegtlin and his associates, a review of the results and theory of treating alcohol addicts by the conditioned reflex principle shows that disappointing results obtained by earlier workers were due to failure to consider one or more of the following fundamentals: 1. Successful conditioning demands a most exact and detailed technic, which cannot be accomplished without a literal application of Pavlov's principles and the acquisition of skill and judgment which result only from experience. 2. Attempts to establish aversion to liquors by the conditioned reflex by adulterating the drinks to be ingested with nauseants is not successful because of the narcotic effect of the alcohol that is absorbed, and it allows the development of a distaste only for the adulterated drink. This type of therapy is

unscientific, for it allows the alternation of positive (drugged liquor) and negative (undrugged liquor) stimuli. 3. Apomorphine is unsuitable as the unconditioned (nauseating) stimulus because its emetic and nauseant action is too brief and because of its hypnotic or euphoric after-effects. It is not always a safe drug to administer to alcohol addicts. 4. The conditioning séance must be carried out in a specially constructed treatment room from which all extraneous stimuli are excluded while the olfactory, visual and gustatory stimuli related to drinking are stressed. 5. All conceivable types of liquor must be utilized, for if an aversion is created toward only one or two liquors an early relapse is to be expected. 6. The patient must be taught to discriminate between noxious and innoxious beverages at the subconscious level of neural activity. 7. A proper technic requires the ability to administer the conditioned stimulus (liquor) within a few seconds before the unconditioned stimulus (nausea) manifests itself. A proper degree of conditioning is most important, as it is easy to "overcondition" the patient, with resulting loss of aversion. 8. Reinforcement of the conditioned reflex by systematic follow-up treatment is necessary if optimal results are to be obtained. 9. If the foregoing is carried out, a cure rate of more than 64 per cent may be anticipated; this may be raised by reinforcement procedures.

Surgery, St. Louis

8:903-1092 (Dec.) 1940

- Morphologic Aspects of Carcinoma of Lung. B. Halpert, New Orleans.—p. 903.
Primary Bronchiogenic Carcinoma: Clinical Study. J. J. Singer, Los Angeles.—p. 910.
Body Section Radiography in Malignancy of Lower Respiratory Tract. S. Moore, St. Louis.—p. 924.
Bronchoscopic Diagnosis of Bronchial Carcinoma. P. Hollinger, Chicago, and D. B. Radner, Honolulu, Hawaii.—p. 939.
*Diagnosis of Malignant Lung Tumors by Aspiration Biopsy and by Sputum Examination. L. F. Craver, New York.—p. 947.
Resection of Lung. E. D. Churchill, Boston.—p. 961.
*Surgical Considerations of Primary Carcinoma of Lung: Review of Literature and Report of Nineteen Cases. A. Ochsner and M. DeBakey, New Orleans.—p. 992.

Microscopic Proof of Malignant Lung Tumors.—

According to Craver, since the microscope gives the only proof of the existence of malignant pulmonary tumors, no treatment should be undertaken until evidence is obtained and the necessity for treatment, which is radical and hazardous, is definite. Biopsy specimens of pulmonary tumors are often difficult to obtain, as many are not accessible to the bronchoscope. Thoracotomy or examination of pleural exudates is likely to be resorted to. In view of the shortcomings of these diagnostic procedures, the staff at Memorial Hospital began more than a decade ago to apply aspiration biopsy to pulmonary tumors, feeling that this procedure presented a means of obtaining a diagnosis quickly, with comparatively little discomfort or danger to the patient, and particularly without employing thoracotomy in inoperable cases. A study yielded 175 microscopically proved cases from a total of 401 cases. After 1932 the number of proved cases for the first time, and steadily thereafter, exceeded the number of unproved ones. The methods relied on for diagnosis in preparing for treatment the 175 patients were thoracotomy, bronchoscopy, aspiration biopsy and postmortem confirmation. Aspiration biopsy established the diagnosis in 64 cases during life. Two of the 175 patients happened to save gross pieces of tissue which they had expectorated. These pieces permitted sectioning in the routine manner and gave positive diagnoses. From 1935 to July 1939, aspiration biopsy accounted for 51.6 per cent of all the microscopically proved cases, or 49 of 95 cases. A detailed account of the technic of aspiration biopsy of the lung is given and its hazards are discussed. In the Memorial Hospital series, of a total of 230 lung aspirations there has been no case of empyema, pulmonary abscess or growth of tumor along the puncture tract. Two instances of air embolism resulting from pulmonary puncture have been encountered. On the theory that air bubbles introduced into the pulmonary venous system and thus via the left side of the heart into the systemic circulation tend to ascend, it is recommended that all punctures be done with the patient lying flat or in a slight Trendelenburg position so as to minimize the danger of air bubbles going cephalad. Needles of the smallest caliber consistent with the minimal danger of breakage are to be employed. Successful aspirations

can be obtained from subcutaneous tumors even with hypodermic needles if the proper technic is employed. Development of technic of searching sputum for tumor cells is worthy of trial.

Primary Carcinoma of Lung.—Ochsner and DeBakey state that in a decade the prognosis of primary carcinoma of lung has been reversed from absolutely hopeless to relatively favorable. The fact that a number of patients living and well five years or more after operation is due chiefly to the rapid technical strides made in thoracic surgery. Its developments are now in such a perfected state that the most important consideration is early diagnosis. The consensus is that the only curative treatment of primary pulmonary carcinoma is surgical extirpation. Any procedure short of total pneumonectomy is irrational, as it is the only procedure which removes adequately the primary focus and the regional lymph nodes. Lobectomy does not extirpate them. The high incidence of lymph node involvement is seen in the following: Of 2,579 collected cases the regional lymph nodes were involved in 75.9 per cent. In Forni's collected cases of pneumonectomy the incidence of recurrence was 9 per cent, as compared to 25.8 per cent following lobectomy. Operability in pulmonary carcinoma depends on the time elapsed from the onset of symptoms. Many cases are inoperable when first seen. Factors which preclude resection are distant metastases, involvement of the contralateral lung, evidence of advanced mediastinal involvement, fixation of the trachea and bronchi, widening of the carina, extension of the process above the bifurcation, involvement of the phrenic or vagus nerves and extension to the pleura. Debility and advanced age also contraindicate radical extirpation. Borderline cases should be given the benefit of exploration even at the risk of closing up many of them without extirpation, as in these instances it is the only means by which operability can be determined. The operability is still far too low, probably because of the fact that diagnosis is late. In 139 collected cases 68 (49 per cent) were operable, whereas 19 (63.3 per cent) of the authors' 30 cases were operable. They believe that their higher incidence of operability is probably due to the fact that they explored apparently inoperable cases which at the time of operation were found operable. A preliminary artificial pneumothorax is extremely desirable in preparing these patients for pneumonectomy, as is general rehabilitation. For pneumonectomy the most important requirements are complete control of intrapulmonic pressure, adequate facilities for aspiration of respiratory secretions, maintenance of quiet respirations and high oxygenation, avoidance of distressing cough reflex and rapid return to consciousness after operation. For this a highly trained and skilful anesthetist is obligatory. The anesthetic agent should permit the administration of a high concentration of oxygen; cyclopropane and ether permit this. The authors prefer cyclopropane. Total removal of the involved lung and the mediastinal lymph nodes can be adequately performed only by individual ligation of the hilar structures. The various approaches in pneumonectomy, the technic of exposure, isolation and ligation of the hilar structures are described, illustrated and evaluated. Analysis of the 139 collected and the 19 personal cases show a general mortality of 45 per cent. The most frequent causes of death are cardiac and pleuropulmonary complications. A follow-up of 57 of 73 of the collected series reveals that 70 per cent of the patients are still living, as are 7 of the authors' 10 patients who recovered from operation, the longest survival being four and one half years.

Western J. Surg., Obst. & Gynecology, Portland, Ore. 48:715-778 (Dec.) 1940

- Social History of Medicine. H. E. Sigerist, Baltimore.—p. 715.
Clinical Study of Gonadotropic Hormone in Ovarian Dysfunction. V. L. Stevenson and L. A. Stevenson, Salt Lake City.—p. 723.
Suction Drainage in Prevention and Treatment of Peritonitis and Its Complications. R. C. Chaffin, Los Angeles.—p. 727.
Coccidioid Granuloma: Report of Case Originating in Texas. M. P. Foley, J. G. Love, A. C. Broders and F. R. Heilman, Rochester, Minn.—p. 738.
Experiences with Stilbestrol. P. G. Fuerstner, San Francisco.—p. 742.
Clinical Investigation of Synthetic Estrogen Stilbestrol. L. Felper and S. Gendel, Los Angeles.—p. 746.
Congenital Pits of Lower Lip: Report of Three Cases in One Family. C. E. Gurney, Portland, Ore.—p. 753.
New and Improved Method of Circumcision. C. J. Ross, Portland, Ore.—p. 755.
Use of Chemically Pure Digitalis Glycosides, with Special Reference to Lanatoside C. A. K. Hrenoff, San Francisco.—p. 757.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Australian and New Zealand J. Surgery, Sydney 10:113-220 (Oct.) 1940

- John Browne and His Treatise on Muscles. K. F. Russell.—p. 113.
 Denis Browne Splints in Treatment of Talipes Equinovarus. N. M. Harry.—p. 117.
 Consideration of Some Problems Associated with Carcinoma of Cervix. L. S. Kidd.—p. 123.
 Development of Lymph Nodes in Fat. E. S. J. King and P. MacCallum.—p. 126.
 Diagnosis, Incidence and Treatment of Avitaminosis A and D in Obstructive Jaundice. M. F. A. Woodruff and R. D. Wright.—p. 135.
 *Perforation of Small Intestine by Swallowed Foreign Bodies. C. B. Melville.—p. 146.
 Immediate and Remote Effects of Minor Lesions of Cervical Portion of Spinal Cord Following Head Injury. I. M. Allen.—p. 157.

Perforation of Small Intestine by Swallowed Foreign Bodies.—Melville points out features of perforation of the small intestine by an ingested foreign body which will aid in the correct diagnosis when the patient is first seen. He reports 5 cases and 1 of perforation of Meckel's diverticulum by an ingested foreign body. Operation was performed by the author on 3 of these patients. Examination of the records of the last six years of the Alfred Hospital revealed 2 further cases; 1 of these was of Meckel's diverticulum. The sixth patient was under the care of K. E. Rex and C. A. M. Renou, who supplied the details. In all except the 1 case the terminal part of the ileum was perforated. The condition is not common and apparently has never been diagnosed before operation or necropsy. This is because of its close similarity to acute appendicitis in some cases; in others the clinical features have been too confusing to suggest the origin of peritonitis. This group may also be confusing because similar cases are rare in any one surgeon's experience. To aid in the diagnosis of the condition a theoretical postulate consisting of colic, peritonitis and a locus in the lower part of the abdomen is advanced. Many of the acute cases approximate this concept. The influence of the omentum and of the effective size of the perforation modifies the features of a typical case. Although uncommon, perforation of the small intestine by a foreign body should be kept in mind as a possible cause of obscure peritonitis. The author reviews 9 cases from the literature.

British Medical Journal, London

2:693-730 (Nov. 23) 1940

- *Treatment of Burn Shock with Plasma and Serum. D. A. K. Black.—p. 693.
 Jaundice in Leuko-Erythroblastic Anemia. J. M. Holmes and A. J. McCall.—p. 698.
 Penetrating Bayonet Wound of Perineum: Case with Interesting Complications. J. S. Horn.—p. 700.
 *Treatment of Burns by Silver Nitrate, Tannic Acid and Gentian Violet. J. A. Ross and K. F. Hulbert.—p. 702.
 Heparin in Subacute Bacterial Endocarditis. G. C. Dockeray and E. Kawerau.—p. 703.

Treatment of Burn Shock with Plasma and Serum.—Black treated 7 severely burned or scalded patients with infusions of plasma and/or serum. The plasma used was obtained by separation from blood taken into standard Medical Reserve Corps bottles containing 180 cc. of citrate solution, the final product being "half-strength plasma." The serum protein was made up by the addition of sterile water to dried serum, and the solution used was four times the concentration of the original serum. Blood and plasma volume, hematocrit, hemoglobin and erythrocytes, protein and albumin, chloride, bicarbonate and urea, sodium and potassium were determined before and after the infusion of plasma or serum and after complete recovery from the burn. Records were kept of the pulse and blood pressure and of the patient's general condition. With the exception of the sixth patient, whose injury was slight in extent and degree, the burn was followed in less than an hour by severe and increasing classic shock. There was no remission after the onset of shock justifying a distinction between primary and secondary shock. Three infusions of from 150 to 300 cc. of the serum and six infusions of from 500 to 2,000 cc. of the plasma were given the 7 patients. The fourth patient, who was burned over more than half the body surface, did not respond to concentrated serum infusion. The other eight infusions were

all followed by definite, in some cases dramatic, improvement. Peripheral cyanosis disappeared, the veins filled out and mental apathy gave place to alertness. The mental quickening was sometimes evidenced by a new consciousness of pain in the burned area. Patients were better able to take fluids by mouth and to retain them. The blood pressures rose. No reaction followed serum or plasma infusion. The results with four times normal serum were less favorable than those with plasma; 1 of the 3 patients treated with concentrated serum died and the other 2 required an infusion of dilute plasma later. The period during which patients with burns are in jeopardy from shock extends for some forty-eight or seventy-two hours after the accident. The pathologically increased capillary permeability, the fundamental lesion in shock, can be improved by maintaining during the danger period an adequate blood volume by replacing the protein and fluid which are lost. This maintenance prevents the onset of irreversible tissue changes. Since shock is an intractable condition plasma should be given early, before general circulatory changes occur. In patients who have had no hemorrhage the determination of hemoglobin offers a sensitive measure of the amount of plasma lost. For approximate calculation of the plasma deficit it is justifiable to assume a hemoglobin percentage of 100 and a blood volume of 5 liters, of which 3 liters is plasma. The increased hemoglobin value observed bears the same ratio to the initial value as the initial value for blood volume does to the new blood volume, since the erythrocyte volume remains unchanged. This may be expressed by $\frac{Hb_2}{Hb_1} = \frac{BV_1}{BV_2}$ or, substituting the assumed values, $\frac{Hb_2}{100} = \frac{5}{(5-x)}$, where Hb_2 is the observed hemoglobin value after the burn and x is the amount of plasma lost; x can be calculated easily if Hb_2 is known. Patients who show a hemoconcentration of more than 10 per cent and in whom the burn involves an area equal to one limb or greater should be given plasma or serum. For patients with shock an overdose of fluid is as dangerous as an underdose, though the danger is less with protein-containing infusions than with saline solutions, which should not be used. To avoid this danger the approximate deficit in the plasma volume should be calculated on admission and the citrated plasma given intravenously while preparations are made for cleansing the burned area. After the burned areas are cleansed, the hemoglobin estimation should be repeated and if hemoconcentration exceeds 10 per cent a further appropriate amount of plasma should be given. This means that in the average case of extensive burns a liter of plasma should be given before the burns are debrided, while after debridement as much as 2 or 3 liters may be required; such an amount is best given by cannula at a drip speed of about a hundred drops a minute. It is necessary to examine the patient every few hours during the second infusion to prevent overdose. Engorgement of the neck veins is a valuable sign that too much fluid is being given. The intravenous drip should not be maintained for more than one or at most two days, as by then fluid by mouth should be possible and the danger of death from shock is diminishing, while the risk of pneumonia, which is aggravated by pulmonary edema, is becoming more imminent. For patients with burns, as for others with disordered water metabolism, records of fluid balance should be kept, and the amount of fluid given by mouth should be regulated on this basis.

Silver Nitrate, Tannic Acid and Gentian Violet for Burns.—Ross and Hulbert report the results they obtained with silver nitrate, tannic acid and gentian violet in the treatment of 5 severely burned airmen; 4 were admitted to their care within eight and 1 forty-eight hours after injury. The treatment followed in each instance closely paralleled that advocated by Dennison in 1939. The immediate coagulation method proved completely successful in their 5 cases. Sepsis and pulmonary complications were absent, despite the variety of anesthetics used. The method is a definite advance on the treatment of burns, especially in war surgery. Thorough gentle cleansing of all loose epithelium is essential before the solutions are applied. Splinting the burned limbs to ensure rest and to prevent contractions is essential. No other dressings are required. The results justify the exacting routine of repeated applications of gentian violet, silver nitrate and tannic acid solutions to produce a dry smooth coagulum.

Lancet, London

2:611-640 (Nov. 16) 1940

- *Mass Radiography in Practice. F. Heaf.—p. 611.
Traction Lesions of External Popliteal Nerve. H. Platt.—p. 612.
*Pneumococcic Meningitis Since Introduction of Sulfapyridine. F. H. Coleman.—p. 615.
Blood Urea and Plasma Chloride in Experimental Hemorrhage. D. A. K. Black.—p. 618.
Spontaneous Pneumothorax Complicating Staphylococcal Septicemia. E. C. B. Butler and K. M. A. Perry.—p. 619.

Mass Roentgenography in Practice.—The object of mass roentgenography, according to Heaf, is to discover cases of pulmonary tuberculosis. It should not be considered as a means of determining the incidence of tuberculosis but as an instrument for combating the spread of infection by revealing the hidden active cases among the apparently healthy population. Roentgenography should be presented to the public as part of a general fitness campaign rather than a search for cases of tuberculosis. An organization for the rehabilitation of the abnormal cases discovered must be promoted. Inpatient observation and treatment must be avoided where possible and every effort made to prevent the development of invalidism. Attention should be given to the domestic environment, employment, leisure and daily routine of those whose chests show lesions which are or may be of clinical significance. The diagnosis of chest lesions discovered by mass roentgenography may have far-reaching consequences, and doubtful cases should be submitted to a board of three specialists, of whom the tuberculosis officer should be one. Sufficient accommodation should be available after the war for the observation and treatment of active cases. Investigations into domiciliary conditions and employment, training in suitable occupations, and redistribution of labor might be under the management of a national rehabilitation board, assisted by industrial organizations. Cases needing care because of the presence of tuberculosis would be handed over to the public health authorities for observation and treatment. Since the main benefit of the scheme would fall to industry, industrial concerns should help financially in the inauguration and maintenance of the scheme, while the treatment and part of the rehabilitation costs might be borne by the local authorities.

Pneumococcic Meningitis Since Sulfapyridine.—Coleman summarizes in tabular form most of the published cases of pneumococcic meningitis in which sulfapyridine was administered and reports 2 cases of his own. The tabulated cases number 27. The author finds that sulfapyridine has reduced the case mortality of pneumococcic meningitis from close on 100 per cent to about 35 per cent. To be effective, sulfapyridine must be given in large doses at the outset; at least 6 Gm. a day should be given to an adult for the first four or five days, after which the dose can gradually be decreased. There is no reliable clinical evidence that antipneumococcus serum is of value in a straightforward case. Frequent lumbar puncture should be avoided, except where it is indicated for the relief of the patient. Sulfapyridine should be continued in decreasing doses for at least a week after the temperature has returned to normal. A patient who is going to recover will nearly always show some signs of clinical improvement within the first three or four days; and, if improvement is noticed at all, the patient almost always makes a complete recovery in the end. Provided dosage has been adequate, cases proving resistant to treatment are due either to a strain of pneumococci insensitive to sulfapyridine or to a strain which has become tolerant to the drug.

2:641-672 (Nov. 23) 1940

- The Physics of Blast. G. A. Sutherland.—p. 641.
*Chemotherapy of Cerebrospinal Fever in Childhood. Margaret I. Williams.—p. 642.
*Deficiency of Vitamin C and Vitamin P in Man. H. Scarborough.—p. 644.
Acute Idiopathic Porphyria: Report of Case. L. Rau.—p. 647.
Treatment of Splenomegaly by Ascoli's Method. R. W. Stephenson.—p. 648.
Fistula of Female Urethra After Gunshot Wound. G. G. Turner.—p. 649.
Apparatus for Giving Intravenous Anesthetics Continuously. R. R. Macintosh and E. A. Pask.—p. 650.
Acute Fatal Hyperparathyroidism. F. B. Smith and R. T. Cooke.—p. 650.

Chemotherapy of Cerebrospinal Fever in Childhood.—Williams reports 102 cases of cerebrospinal fever in patients under 16 years of age. Lumbar puncture was performed in

every case on admission, and the organism was typed. In the case of turbid fluid, sulfanilamide was given immediately. Sulfanilamide was used because it is much more readily tolerated by children than sulfapyridine and causes less vomiting; it is also cheaper. If there is any vomiting, the lost dose is immediately readministered. Sulfanilamide alone was given to 94 patients, the average daily dose varying from 2.5 Gm. in infancy to 7 Gm. in older children, and the usual period of treatment was ten days. An adequate initial dose was considered to be of paramount importance; at least half of the total daily dose was given as the initial dose. In a few cases sulfapyridine was given alone and in others to alternate with sulfanilamide. Two patients were given serum intrathecally and intramuscularly. Fluids were administered liberally, if necessary parenterally, and an iron mixture was given during convalescence. Complications of sulfanilamide therapy were cyanosis, morbilliform eruptions and sometimes severe anemia. It seems to be the susceptibility of the individual hemopoietic system rather than the amount of the drug administered that determines the onset of anemia. Of 102 patients 13 died, giving a case fatality of 12.7 per cent. Of the 13 who died, only 7 had received adequate therapy. In 54 children under 3 years the fatality rate was 14.8 and in 21 under 1 year it was 19 per cent. The most favorable age group was 5 to 10 years, in which there were no deaths.

Deficiency of Vitamin C and Vitamin P in Man.—According to Scarborough, a low capillary resistance in people with various forms of nutritional deficiency was found to be associated with a deficiency of vitamin P. This communication demonstrates existence of deficiencies of both vitamin C and vitamin P in man. The 6 patients studied all had a clinical deficiency of vitamins but, apart from this, were free from other obvious organic disease, except patient 1, whose blood gave a positive Wassermann reaction. Patients 4, 5 and 6 gave a history of chronic alcoholism. All were in bed in the hospital during the investigation. On admission each patient was immediately submitted to rigid dietary control, the diet being as far as possible free from vitamins A, the B complex, C, D and E. The calorific value of the diet was unrestricted. Vitamin P was administered as an active fraction prepared from oranges. The administration of vitamin P did not arrest the subcutaneous hemorrhages. Two patients (5 and 6) already showing clinical signs of deficiency of vitamins were given the "vitamin free" diet already described and supplements of vitamins A, B₁, C and D in doses sufficient to correct a deficiency of these vitamins. Capillary resistance was determined repeatedly to assess the deficiency of vitamin P. In neither case 5 nor case 6 was there any hematologic abnormality which could explain the spontaneous bleeding. Since a much increased fragility of the capillary walls (low capillary resistance) was determined in both cases, it is concluded that the spontaneous petechial hemorrhages were due to this excessive fragility. The reported experiments show that at least two forms of subcutaneous bleeding may develop as the result of nutritional deficiency in man. One form is due to a deficiency of ascorbic acid and is arrested promptly by the administration of this substance but not of vitamin P. It is not necessarily accompanied by a low capillary resistance, although, since dietary deficiency in the human subject is almost always multiple, it is often associated with a decreased resistance. A decreased capillary resistance is an expression of a deficiency of vitamin P and is increased promptly by the administration of this vitamin but not of ascorbic acid. Spontaneous petechial bleeding may develop when the capillary resistance is low. It is associated with feelings of lassitude and easily induced fatigue and with pains in the shoulders and legs. It is an expression of a deficiency of vitamin P and is controlled by the administration of this vitamin. The two forms of hemorrhage are different in appearance. The hemorrhages characteristic of a deficiency of ascorbic acid are large (ecchymoses) and involve considerable areas of subcutaneous tissue and muscle. The gingival bleeding which develops in scurvy is an expression of a deficiency of vitamin C and is not controlled by the administration of vitamin P. The hemorrhages developing as the result of a deficiency of vitamin P are always small (petechiae) and take place in the skin. They are often circumpilar. Both forms of hemorrhage tend to appear first and are often more severe in parts exposed to the pressure of clothing and in the legs because of the higher venous pressure in that part.

Anales de la Sociedad de Puericultura de Buenos Aires

6:159-242 (July-Sept.) 1940. Partial Index

*Thyroid Hormone in Congenital Myxedema. A. Buzzo, A. A. de Muñoz and A. Calabrese.—p. 194.

*Sulfanilamide in Treatment of Fissured Nipples. H. Magliano and H. Ivon Manara.—p. 203.

Thyroid Hormone in Congenital Myxedema.—Buzzo and his collaborators administered thyroid hormone (thyroglobulin) in several cases of typical congenital myxedema of infants. Five cases are reported. The substance was administered in fractional daily doses of from 0.01 to 0.05 Gm., given by mouth for two consecutive weeks, followed by periods of rest of one week for the first year and of two weeks for the second and last year of the treatment. Vitamins A and D were given to the patients from the sixth month of the treatment on. The treatment was well tolerated. It caused irritability and insomnia in a few but was controlled by temporary discontinuation of the treatment. The substance is efficacious, easy of administration, has a favorable selective action on the intestine by which constipation is controlled, and does not injure the cardiovascular apparatus. General symptoms, physical and mental signs improve so as to approach the normal or nearly normal state in the majority of cases. The substance possesses pharmacodynamic action as efficient as that of the total thyroid extract and thyroxine but is more persistent.

Sulfanilamide in Treatment of Fissured Nipples.—Magliano and Ivon Manara employed sulfanilamide in 15 cases of unilateral or bilateral fissured nipples. Sulfamidyl (4-sulfamido-2,4-diamino-azo-benzene-hydrochloride) was administered in fractional doses of 0.32 Gm. twice daily for from three to eight days and in rare cases for twelve days. Pain disappeared within the first twenty-four or seventy-two hours of the treatment. Lactation was uninterrupted in most cases and resumed in the rest. The fissures healed in from six to twelve days, and after the crust had fallen off there were no permanent scars. Neither the mothers nor the infants exhibited toxic symptoms. There were no recurrences. More than half the number of the mothers were observed two months after discontinuance of the treatment. They reported on their ability to continue nursing without inconvenience. The drug had no effect on the quantity of milk secretion, which remained as abundant or as scanty as it was before administration of the drug.

Wiener klinische Wochenschrift, Vienna

53:475-494 (June 14) 1940. Partial Index

Appetite. F. Hamburger.—p. 475.

*Star-Shaped Cutaneous Telangiectases in Hepatic Cirrhosis and Its Diagnostic Significance. D. Čičovački.—p. 478.

Accidents in Blood Transfusions After Treatment with Azosulfamide and Uliron (Dimethyl-Disulfanilamide). H. Dibold and G. Kirchhofer.—p. 484.

Cutaneous Telangiectases in Hepatic Cirrhosis.—

Čičovački directs attention to star-shaped cutaneous telangiectases, which were observed in 23 of 41 cases of hepatic cirrhosis. Eppinger was the first one to call attention to these peculiar star-shaped vascular dilatations in patients with hepatic cirrhosis. They are reddish violet, roundish, pinhead to pea-sized spots, which have a central angioma-like elevation, from which delicate, meandering vessels radiate in all directions. Thus the formation has the shape of a star. Microscopic examination discloses that they are greatly dilated capillaries. These vascular dilatations are found only on the upper part of the body. Sites of predilection are the anterior thorax, the forehead, the shoulder, the forearm and the back of the hand. That the development of these star-shaped telangiectases is connected with the hepatic disease is proved by the fact that they increase in number and size with the progress of the cirrhosis. Occasionally some spots disappear and reappear later. That they are star shaped and not longish indicates that they are not the simple capillary dilatations of chronic alcoholism; moreover, they were detected also in cases of cirrhosis in which abuse of alcohol could be definitely excluded. Two factors are of diagnostic importance: First, these star-shaped cutaneous telangiectases appear only in cirrhosis of the liver, not in other hepatic disorders (gallstones, simple icterus and so on). Second, not all cases of hepatic cirrhosis show this symptom. Discussing the pathogenesis of the peculiar vascular dilatation, the author suggests a common con-

stitutional cause for the hepatic cirrhosis as well as for the telangiectases. He directs attention to Chvostek's habitus, which is characterized by hypotrichosis of trunk, axilla and mons pubis, by growth of hair deep into the forehead, dense eyebrows and intense growth of beard, also by incretory changes such as enlargement of the pineal body with missing involution, small thyroid, changes in the hypophysis and atrophy of the sex glands. Persons with this habitus have a tendency to proliferation of the connective tissue not only in the liver but also in the other organs. Chvostek maintained that abuse of alcohol is not the only cause of hepatic cirrhosis, because it cannot always be demonstrated and the liver of some alcoholic persons remains unimpaired. The author observed that the majority of patients with hepatic cirrhosis and the star-shaped telangiectases had Chvostek's habitus, and he gives a detailed description of a case in which hepatic cirrhosis and Dupuytren's contracture developed almost simultaneously. These disorders were familial in that they appeared in father and daughter. The two disorders prove the tendency toward a proliferation of the connective tissue; that is, Chvostek's conception of the connective tissue diathesis of hepatic cirrhosis.

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*Bronchspirometric Study on Ability of Human Lungs to Substitute for One Another: I. Bronchspirometric Experiments in Which One of the Lungs Was Completely Cut off from the Respiration. H. C. Jacobæus and T. Bruce.—p. 193.

*Id.: II. Bronchspirometric Experiments with Both Lungs Breathing, One Nitrogen and the Other Oxygen, With or Without the Administration to One Lung of Carbon Dioxide in Such Concentration as to Prevent the Giving off of Carbon Dioxide from the Lung in Question. H. C. Jacobæus and T. Bruce.—p. 211.

Benign Lymphogranuloma (Schaumann's Disease) and the Eye. A. Lindau and Agne Löwegren.—p. 242.

Iodine Content of Human Urine and Daily Diet in Finland. A. I. Virtanen and E. Virtanen.—p. 268.

Bronchspirometric Experiments on Human Lung.—Jacobæus and Bruce report bronchspirometric experiments on human subjects in whom tests were made for the ability of one lung to do duty for the other in normal oxygen consumption as well as when one lung was made to breathe nitrogen (95 per cent) or nitrogen plus carbon dioxide (5 per cent). In the first study the dyspnea induced by occlusion of one lung was tolerated without difficulty, the respiring lung increasing its ventilation so as to take over the normal bilateral oxygen intake and carbon dioxide output. Oxygen saturation in the arterial blood sank after the occlusion, because the blood flowing through the blocked lung could not be arterialized. The experiments, however, gave no information on the extent to which the occlusion affected the distribution of the cardiac output to the two lungs. The relative values of the cardiac minute volume obtained tonometrically by estimations of the pulse rate and blood pressure indicated that no increase in the minute volume took place during the occlusion. These occlusion experiments seem to be diagnostically valuable for the indication or contraindication of surgical intervention in pulmonary disease. In the second study, in which nitrogen and carbon dioxide were applied to one lung, no greater discomfort was observed. However, in experiments it was found that considerable dyspnea resulted when enough carbon dioxide was added to the nitrogen of the one lung to prevent the output of carbon dioxide from the lung, but not enough to necessitate abandonment of the experiments. The oxygen consumption during both the nitrogen and the carbon dioxide experiments was about as great as in ordinary bronchspirometry. The fact that as much carbon dioxide was given off from the oxygen-breathing as from the nitrogen-breathing lung demonstrated that the excretion of carbon dioxide can proceed independently of the oxygen intake. The oxygen saturation in the arterial blood fell when one lung breathed nitrogen or nitrogen plus carbon dioxide, because the blood passing through it could not be arterialized. In two experiments, regarded by the author as normative, the calculations pointed to an equal distribution of the blood to the two lungs. The relative values for the minute volume of the heart obtained tonometrically by determinations of the pulse rate and blood pressure indicated that no increase occurred in this volume during nitrogen bronchspirometry or in nitrogen in combination with carbon dioxide.

Book Notices

The Control of Tuberculosis in the United States. By Philip P. Jacobs, Ph.D., Director of Personnel Training and Publications. National Tuberculosis Association, New York. Revised edition. Cloth. Price, \$2. Pp. 387, with 3 illustrations. New York: National Tuberculosis Association, 1940.

In this volume the author has presented the entire subject of the development of tuberculosis control work in the United States. Dr. Jacobs has always recognized the importance of the physician in the solution of the tuberculosis problem, and in many places throughout this volume he emphasizes the physician's part in the program. He quotes Osler's famous last words on the subject of tuberculosis to the effect that the leadership in the battle against this scourge is in the hands of the general practitioner. He states that the general practitioner in medicine is in a key position in relation to diagnosis of tuberculosis and to the initiation of treatment for the patient. He calls attention to how physicians in private practice have allied themselves with special tuberculosis associations and have done so much to control the disease. In his chapter on relations with the medical profession, the final paragraph states that "in the light of the experience presented in this chapter it may be said that, although tuberculosis is essentially a medical problem, the control of the disease, a community task, requires the cooperation of the physician in his professional capacity and as a citizen taxpayer with the other lay citizens of his community who comprise the tuberculosis association." Physicians everywhere are desirous of winning a final victory over tuberculosis as they have done with such diseases as smallpox, typhoid and diphtheria. Every physician who reads this book will find much valuable information which he can use in his daily practice, as well as information which will assist him in taking a greater part in the organized movement to control tuberculosis in the United States.

A Comparative Study of the Seasonal Incidence of Mortality in England and Wales and in the United States of America. By E. Lewis-Fanning. Medical Research Council Special Report Series, No. 239. Paper. Price, 1s. Pp. 69, with 13 illustrations. London: His Majesty's Stationery Office, 1940.

The author has recently made a study of English and American seasonal mortality and presents a number of interesting observations. He has used the annual review of the Registrar General's Office for the English and Welsh material and the annual registration area statistics of the United States census for the period from 1931 to 1938; the crude death rates have been standardized for age though not for sex. He found that it was not necessary to correct for monthly shifts in the stratification of the population. In his analysis of the American material he has treated the New England group of states separately from the whole American area. This might seem proper because the wide range of climatic, racial-social factors involved in the consideration of the entire continental American area by comparison with the relatively compact and more homogeneous New England area does produce flattening of the mortality range.

In view of the fact that the British Isles have the presumptive advantage of a maritime climate by contrast to the more brusque continental climate of the United States, Lewis-Fanning's observation that there is a winter disadvantage and a summer advantage of England and Wales over the New England states is of interest. The disadvantages arise largely from the greater English mortality from bronchitis, influenza, pulmonary tuberculosis and pneumonia. This, as he says in his preface, cannot well be accounted for on a climatic factor alone. If one considers general living conditions, it is most likely based on the fact that heating, housing and clothing are more adequate and food more plentiful for the New England population than for the English group.

Secondly, medical care is better as far as medical service, nursing and hospitalization are concerned, all of which would be particularly effective in reducing mortality and incidentally giving point to the gist of the study, namely that the winter and

spring seasonal disadvantages of England might be overcome with more effective work in the direction of preventive medicine and social hygiene.

Unfortunately statistical analysis itself is inadequate for clear-cut conclusions. Even the basic population in the English-Welsh group by contrast to the New England group is decidedly different. Today the term New England does not connote a common hereditary environmental background. Large intrusions of Mediterranean strains (Italian, Jewish, Portuguese) and of French Canadian and Eastern European types have modified the genophase, and this human material has not yet undergone environmental selection in the new habitat in any degree comparable to the English and Welsh groups.

With these reservations in mind—reservations that Lewis-Fanning clearly recognizes—the study is a valuable contribution and should be useful in emphasizing the significance of environmental factors, climatic and seasonal, social and economic, in the evaluation of disease and mortality.

Advances in New York City's Health: Annual Report of the Department of Health of the City of New York for 1939 with a Review of Developments from 1934-1939. Edited by Sarel Zimand, F. H. LaGuardia, Mayor. John L. Rice, M.D., Commissioner of Health. Boards. Pp. 296, with illustrations. New York, 1940.

A chart showing the "conquest of pestilence in New York City" and the total death rate per thousand of population gives a dramatic introductory summary of the battle against disease for little more than a century. We see peaks made by cholera in 1832, 1849 and 1854. On the latter date the total death rate was 47, and from then on it fell steadily, though somewhat irregularly, to 10 in 1939. Each year has seen the scope of work extended. There was but one health center in 1933; there are thirteen today. New developments in the direction of school health and vital statistics services, supervision of food and drug control, sanitary service, public health nursing and industrial hygiene are suggested. The budget of the health department in the year just ended was \$5,728,489. A total of 5,081,064 services and examinations were given to a population of approximately 7,600,000. The incidence of cases and deaths from diphtheria, typhoid and paratyphoid fever reached an all-time low. Only one death from measles was reported. Scarlet fever deaths were the lowest ever reported. For the first time since 1932 a case of smallpox was reported in the city. This story of things accomplished for the protection of health and of victories gained over disease and death is one which could doubtless be told in many other cities. The large population covered, the wide extent of activities, as well as the exceptionally thorough manner in which the facts are reported, give this metropolitan report distinction.

Das menschliche Knochenmark: Seine Anatomie, Physiologie und Pathologie nach Ergebnissen der Intravitalen Sternalpunktion. Von Dr. med. Karl Bohm, Privatdozent an der medizinischen Fakultät der Universität Zürich. Paper. Price, 37 marks. Pp. 286, with 217 illustrations. Leipzig: Georg Thieme, 1940.

During the past few years there have been several monographs on bone marrow aspiration published in Europe. This monograph is by far the most complete and comprehensive. It is divided into two sections. In the first section the author considers the history of the methods of bone marrow study and then takes up the technique of sternal puncture in detail, giving complete information as to the precise method, the needles used, and illustrations of normal marrow in photomicrographs and colored drawings. Embryogenesis of the various cells are next considered. The anatomy of the blood-forming organs and special cell morphology is taken up in some detail and is beautifully and accurately illustrated with photomicrographs and colored plates. The physiology of the bone marrow is concisely summarized and the regulatory mechanism of cytogenesis is explained. The pathology of the bone marrow is considered under the headings of hypoplasia and hyperplasia. The second section is devoted to disturbances involving the erythroid, myeloid, megakaryocytic and lymphatic tissues. Panmyelophthisis is discussed under a separate heading. The diseases of the bone marrow reticulum are next considered. The final discussions are devoted to malignant tumors of the bone marrow and symptomatic changes in the bone marrow as a result of

various infectious diseases. The monograph is concluded with an exhaustive but carefully selected bibliography including a special list of monographs available on sternal puncture. The illustrations both black and white and colored are superior to anything seen in previous monographs on sternal puncture and are particularly helpful. The text is carefully edited and organized and the subject material is well documented. Hematologists and pathologists will find this monograph a most useful addition to their library.

Synopsis of Materia Medica, Toxicology, and Pharmacology for Students and Practitioners of Medicine. By Forrest Ramon Davison, B.A., M.Sc., Ph.D., Assistant Professor of Pharmacology in the School of Medicine, University of Arkansas, Little Rock. Fabrikoid. Price, \$5. Pp. 633, with 45 illustrations. St. Louis: C. V. Mosby Company, 1940.

Though he has not attempted that reorientation without which there would scarcely seem to be good reason for the production of another textbook in pharmacology, the author of this new work has nevertheless trodden the old road in a surprisingly refreshing manner. The book has much merit: it is inclusive, up to date, sufficiently exhaustive for ordinary textbook purposes and extremely readable. Many of Jackson's fine tracings and colored diagrams are borrowed to enrich its pages. The bibliographic references are numerous and evince the author's wide acquaintance with the literature of his subject. There are a few bad printing errors to be corrected before the work goes to press again. The type is very small, but this disadvantage is certainly outweighed by the small size of the volume and by its low price. Unfortunately, there is not enough of the experimental science of pharmacology and there is too much of therapeutics in the book, but it remains to be seen how serviceable this presentation will be in combination with the wide variety of laboratory courses in pharmacodynamics available in our schools nowadays. This new book fully deserves and will surely have a thorough trial by teachers and students this year.

Preface to Eugenics. By Frederick Osborn, Research Associate in Anthropology, American Museum of Natural History, New York. Cloth. Price, \$2.75. Pp. 312, with 12 illustrations. New York & London: Harper & Brothers, 1940.

An up-to-date knowledge of eugenics is no doubt a necessity for medical men. Although this constitutes "a new responsibility for an already overburdened profession, it is also a new opportunity for service, perhaps one of the greatest that remains after the conquest of the infectious diseases." Today many couples, Osborn points out, undoubtedly restrict the size of their families because of fear that their children may inherit some familial defect. In the present state of knowledge they must act on insufficient grounds, for doctors are not trained to give advice of this sort and there is no one else to whom they can turn. "Only the doctor sees in intimate detail the interplay of environment and heredity in which disease and defect may develop, and therefore he alone is qualified to diagnose and interpret the results." The problems which these factors present are by no means academic in nature. Even with our present limited knowledge and with the rudimentary methods available, Osborn estimates that the number of feeble-minded could be reduced by 150,000 a generation for several generations and the number of the schizophrenic and the manic depressive by possibly a like amount.

In order to see the picture in its entirety it is essential to have a working knowledge of the facts of heredity—the known hereditary defects and their mechanism of transmission, the behavior of the genes and chromosomes, the present trends of population both quantitatively and qualitatively, and the eugenic objectives which may be considered reasonable in the light of proved scientific knowledge. In discussing each of these questions Osborn has done a remarkable job of condensation and selection from the vast amount of modern information available. The book is well written and lacking in technical detail, which might interfere with its ease of use. The orientation of the eugenic movement in the light of social policies, nutrition, housing, medical care, recreation and research should be matters of general knowledge. The responsibility of facing these problems is tremendous but "to such a call the doctor has never failed to respond."

Obstetrics in General Practice. By J. P. Greenhill, B.S. M.D., F.A.C.S. Professor of Obstetrics and Gynecology, Loyola University Medical School, Chicago. Cloth. Price, \$3.50. Pp. 448, with 112 illustrations. Chicago: Year Book Publishers, Inc., 1940.

This intensely practical volume reviews in succinct form the knowledge which every safe practitioner of obstetrics must possess. By eliminating historical data, controversial matters and theory, the author has encompassed in a small book the salient facts of everyday clinical obstetrics. Chief attention is devoted to diagnosis, indications and contraindications for operation, prognosis and treatment. The sections on therapy are sound and are presented in such specific detail that they should be of real benefit to the general practitioner. The volume incorporates, moreover, all the more important recent advances; it discusses, for example, roentgen pelvimetry and placentography, sulfanilamide in puerperal infection and the new classification of the toxemias of pregnancy sponsored by the American Committee on Maternal Health. The little chapter on circumcision, a topic not often touched on in obstetric works, should prove most welcome. In sum, Dr. Greenhill's volume can be recommended to general practitioners of obstetrics as a valuable postgraduate course in the "diurnalia" of obstetrics. The format is attractive and the illustrations are well chosen and informative.

Dog-Team Doctor: The Story of Dr. Romig. By Eva Greenslit Anderson, Ph.D. Cloth. Price, \$2.75. Pp. 298, with 21 illustrations. Caldwell, Idaho: Caxton Printers, Ltd., 1940.

The Moravian church sponsored the medical training of young Joseph Herman Romig, who was to dedicate his life to the welfare of the Eskimos in Alaska. Forty-four years ago he went there with his bride and a promise of an expense account of \$50 a year, but no salary for seven years. They were virtually alone in administering to the medical needs of the people of southwestern Alaska for years. There were remnants of Russian occupancy, trappers and adventurers from all corners of the earth when he arrived in this bleak land. Through the days of the Klondike gold rush, days when river traffic grew to hundreds of craft, days of building of railroads and highways and the development of the fishing industry to the present, when the airplane has conquered these wide spaces, Dr. Romig has seen and shared in them all. He has been not only a medical missionary but a superintendent of schools, mayor of Anchorage, a railroad surgeon, a United States commissioner and an expert with a dog team which carried him hundreds of miles over the snow to administer to the sick. This story of his life work reads almost like fiction. Now a modern hospital has been built in Anchorage and the practice of medicine is much simpler. Dr. Romig is living retired at Anchorage, Alaska, but his son is practicing medicine there.

Test Tubes and Dragon Scales. By George C. Basil, M.D. In collaboration with Elizabeth Foreman Lewis. Cloth. Price, \$2.50. Pp. 316, with illustrations. Chicago, Philadelphia & Toronto: John C. Winston Company, 1940.

This book relates numerous incidents that occurred in China when a young American physician went to Chungking to become busily engaged in medical work in an American founded hospital. Chungking, now the capital of China, was founded about 2200 B. C. This prosperous port at the confluence of two rivers clung to its ancient pattern of existence until a short time ago, when war forced the removal of China's capital back into the deep interior. When Dr. Basil left Chungking in 1932 the city was almost the same as it had been centuries before. His patients had been mostly poor Chinese, but some of them were generals, politicians and communists, as Chungking formerly was the center for the Chinese Communist army, which later threw all its strength into the defense of China against a foreign aggressor. This experience gave the author opportunity to look into the ancient Chinese pharmacopeia and medical practice and to get occasional glimpses into the military and political life of this then hoary Chinese community. Dr. Basil was born in 1902 and graduated from the University of Maryland School of Medicine, Baltimore, in 1927. He now practices medicine in Annapolis, Md.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CHRONIC RESPIRATORY INFECTION AND CLIMATE

To the Editor:—Two patients, mother and daughter (about 8 years of age), are both subject to continual colds during the winter months. The condition in each one takes the form of a catarrhal infection of the upper respiratory passages and has resisted the usual remedial treatments. They live in the mid Hudson valley, where fogs and dampness are prevalent. The husband is a fruit tree expert and as a change of climate is being considered he will be obliged to select the region for his family's residence accordingly. Can you point out to me the regions in the New England and Middle Atlantic states that have a drier climate? I have heard it said that Maine is a good state for cases of this kind.

M.D., New York.

ANSWER.—Migration for well established catarrhal states of the upper respiratory passages is scarcely worth considering unless it can be to the nonstormy regions of the Southwest. The frequency and severity of sudden storm changes in the weather seem to be an important causative factor in the genesis of respiratory infections and in the maintenance of such troubles once they have become chronically established. There is no nonstormy region in the northeastern part of the United States. Maps showing the courses followed by storm areas in their passage across the continent have recently been published (Mills, C. A.: Medical Climatology, Springfield, Ill., Charles C. Thomas, 1939) and on these maps it is seen that any migration to avoid storm effects must be to the Southwest. New Mexico, Arizona and southern California offer the only regions free from winter storminess. Fortunately for the family in question, that region has a considerable fruit-growing industry. Since the query referred only to migrational possibilities, no other phases of the handling of nasal catarrh are considered in this reply.

PREECLAMPTIC EDEMA

To the Editors:—Ammonium chloride and ammonium nitrate have been successfully employed in the management of edema, particularly that of cardiac origin. In preeclampsia, however, it seems that the mechanism of edema formation is not well understood; furthermore, one of the basic objectives of most treatment routines is the prevention of acidosis. Is the use of these drugs in the management of preeclamptic edema (unaccompanied by frank acidosis) (a) permissible, (b) rational, (c) effective? Are mercurial diuretics indicated?

M.D., Illinois.

ANSWER.—It is quite true that the mechanism of preeclamptic edema is not solved. It is obviously not cardiac in origin and not attributable primarily to albuminuria and hypoproteinemia. Presumably, some endocrine disturbance may be the chief factor in view of the striking effects of the estrogens and adrenal cortex extract on water and salt balance. Whether these substances act on the renal tubule alone or on the tissues in general is not established. In either case the treatment of preeclamptic edema involves the same general principles as other types of edema—rest, restriction of salt and water, and the use of diuretics. Since there is no significant acidosis in preeclampsia, ammonium salts may be given and will be effective provided the patient can tolerate them. Gastrointestinal irritation may limit their usefulness. Mercurial diuretics are not contraindicated if renal function is satisfactory. For some unknown reason, however, little diuresis ordinarily results. This fact perhaps supports the theory of the renal site of action of the edema producing mechanism.

INSPECTION OF CONJUNCTIVA

To the Editor:—Please outline for me the known methods of inspecting the upper angle of the conjunctiva.

E. R. Hargett, M.D., Springfield, Ohio.

ANSWER.—The methods of inspecting the upper angle of the conjunctiva, by which is undoubtedly meant the conjunctiva lying in the cul-de-sac formed by the upper lid at the upper rim of the orbit, where it approximates the globe are: 1. According to the description in Gifford's textbook "This may be done while facing the patient, if the head is supported by a headrest. For convenience in using ordinary chairs, it is best to stand behind the patient with the head resting against one's body. The patient is asked to look down. With the thumb and forefinger of the right hand, the eyelashes of the upper eyelid are grasped and the lid is pulled downward and away from the globe. The

forefinger of the left hand is now used to press against the upper edge of the tarsus, through the skin, while the right hand pulls the eyelid quickly upward over the left forefinger as it holds the tarsus. The left hand is now removed and the lash border is held against the upper orbital rim while the tarsal conjunctiva is examined. An applicator or tooth pick may be used to replace the left forefinger, but it is less convenient as it requires to be held in place, while, when the eversion is completed as described the left hand remains free and for necessary manipulations and treatments."

2. A hand lid evorter may be purchased from any surgical or optical supply house. The evorter has a flange by means of which the entire upper lid is spread out and the cul-de-sac readily exposed.

3. Frequently, an ordinary lid clasp forced as far back as possible on the lid and then causing an eversion of the lid will readily expose the angle of the conjunctiva.

It is absolutely necessary that the eyeball be directed downward, as this pull on the bulbar conjunctiva adds in spreading out the loose conjunctiva of the upper angle where it meets the palpebral portion.

NUMBNESS OF FACE AND MIGRAINE

To the Editor:—For several months I have been giving ergotamine tartrate (gynergen) for migraine headaches. I give 0.5 cc. (0.25 mg.) at the beginning of the menstrual period, at which time the headache begins, and get relief inside an hour, which headache does not return till the next period. No other treatment is of any avail. The most recent headache was just treated in the same way. The patient states that from two weeks ago till now she has had a constant feeling of slight numbness and tingling of the left side of the face. Isn't it possible that the ergotamine tartrate is not the causative agent of her symptoms, owing to the fact that toxicity generally shows by these symptoms in the extremities rather than in the face, that these symptoms are really noticeable only when the patient is nervous (which is often), that the effective dose is small and not repeated for a month, that her symptoms started two weeks after the last dose, that the patient is slightly anemic and that she is conscious of herself and intelligent and likely to have found out the possible toxic effect? What would you advise?

S. J. Hyman, M.D., Inkster, Mich.

ANSWER.—The symptoms described following treatment with ergotamine tartrate for migraine headache suggest a neurosis or possibly a vascular lesion of the posterior fossa. With respect to the latter, it would be wise to obtain a careful examination of the cranial nerve and other central nervous system function. X-ray films of the skull and lumbar puncture are indicated. Such pathologic change might be in the nature of an aneurysm (which could account for the headache) or a tumor in the pontile angle or, finally, a vascular lesion in the medulla, which in turn might or might not be due to vasoconstriction following ergotamine therapy. It is unlikely that ergotamine tartrate is the cause of the patient's symptoms. It is likely that they are psychogenic but it is more probable that they have recently become a part of the migraine syndrome itself. Occasionally a mixture of trigeminal and migraine symptoms occurs in the same patient. Their constancy, however, suggests a possible vascular lesion. It would be wise to omit the treatment until all aspects of the problem have been thoroughly studied.

An attempt might be made to control the headache by inhalation of 100 per cent oxygen at 7 liters per minute for an hour to two hours, thus giving one a chance to study the facial paresthesias in the absence of ergot therapy. The use of vitamin B complex might lessen the paresthesia.

POLLEN AS CAUSE OF ASTHMA WITHOUT HAY FEVER

To the Editor:—Several patients with asthma react severely to ragweed pollen extract in the scratch test. They do not appear to have symptoms of hay fever, but all have asthma at various times of the year and also during the early fall when the ragweed season is on. While the other reaction gives some clues to the asthmatic attacks from various sources, the question arises whether these patients need protection from ragweed pollen. In other words, does ragweed pollen cause bronchial asthma in some persons and hay fever in others? As I have observed a strong reaction of this sort in a large number of cases, the solution of this problem is quite important.

Paul Lahvis, M.D., Gowanda, N. Y.

ANSWER.—Ragweed pollen and other pollen not infrequently are the cause of asthma in the absence of hay fever. In many such instances the hay fever has been present earlier in the career of the patient's allergy; in others, nasal symptoms have never manifested themselves. This situation should not be surprising in view of the fact that asthma is not uncommonly caused by other inhalants in the absence of rhinitis. In the conditions described in the question, some additional observations might be significant in reaching a decision. Does the asthmatic patient consider autumn one of his bad periods? Did he, at the beginning of his asthma career, have fall asthma

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as his initial allergic experience? Even if these questions are answered in the negative, it is still possible that ragweed pollen may be an etiologic factor. A test which might help is the insufflation of a moderate quantity of the dry pollen. An asthmatic attack following would lend strength to the belief in this antigen as a significant cause; a negative result, however, would not disprove that possibility. It is important, of course, to remember that a violent and prolonged attack may result from such a procedure. In case of any doubt, the stand should be taken that the safer and wiser course to follow is to treat such patients with pollen extracts rather than to fail to do so because of some degree of uncertainty of the etiologic role assumed by the pollen.

RECURRENT CARBUNCLES

To the Editor:—A patient with recurrent carbuncles about the neck and back has tried many treatments for five years without success. Please give me a suggested dosage of sulfathiazole for such a condition. How long a time should medication be continued? The patient is 17 years old. M.D., Massachusetts.

ANSWER.—In recurrent furunculosis and carbuncles the following treatment may be attempted: Staphylococcus toxoid may be administered in order to prevent the development of new lesions. Full strength staphylococcus toxoid (containing 1,000 units of toxin per cubic centimeter) may be given subcutaneously. The first dose would be 0.02 cc., with subsequent doses of 0.04 cc., 0.07 cc., 0.10 cc., 0.15 cc., and 0.20 cc. at intervals of four days. Local erythema may be noted at the site of injection, and sometimes fever occurs. In addition, in the acute phase in an adult, one can administer sulfathiazole, giving an initial dose of 4 Gm., followed by 1 Gm. every four hours until definite improvement is noticed, at which time the dose may be cut to 1 Gm. four times a day, this to be kept up until the infection is completely under control. Frequent hot saline compresses or fomentations should be applied to the local lesion. Incision should be employed after definite fluctuation develops in order to evacuate the pus and necrotic material. Great care must be taken to avoid the incision of uninfected tissue and of tissue with nonfluctuant cellulitis.

PROSTIGMINE METHYLSULFATE TEST FOR PREGNANCY

To the Editor:—A pamphlet on the use of prostigmine methylsulfate as a test for pregnancy states that if used as described it is a safe, reliable and accurate test for pregnancy, having the same degree of accuracy as the Friedman test. I am interested in this test and would appreciate any comment, especially as to its safety in pregnancy and its accuracy. T. T. Rackliffe, M.D., Los Angeles.

ANSWER.—In an article published by Soskin, Wachtel and Hechter in THE JOURNAL May 25, 1940 on the treatment of delayed menstruation with prostigmine methylsulfate it was concluded that prostigmine methylsulfate had no effect on early or prolonged amenorrhea due to endocrine dysfunction or to local organic changes. Also, experimenting on animals and man, these authors conclusively demonstrated that prostigmine methylsulfate does not initiate menstrual flow when the delay is caused by pregnancy. On the basis of constancy of the results on pregnancy (i. e. absence of bleeding) they concluded that it is a therapeutic test for pregnancy.

Since they injected 2 cc. of a 1:2,000 solution of prostigmine methylsulfate on two or three successive mornings in twenty-three known pregnant women without causing a disturbance in the pregnancy, it seems that the test is a safe one. However, since they claim that the test is not entirely reliable in endocrine disturbances, menopause and local conditions, procedures necessary to rule out these exceptions are of such magnitude as to make the test far inferior to the Friedman or the Aschheim-Zondek test. In the Friedman or the Aschheim-Zondek test a negative reaction rules out the possibility of pregnancy in at least 98 per cent of the cases. A communication in the correspondence column of THE JOURNAL Dec. 14, 1940, page 2103 reports the test ineffective in 4 cases.

ECHINOCOCCUS INFECTION OF LIVER

To the Editor:—Please let me know what is the modern acceptable treatment for echinococcus infection of the liver. M.D., New Jersey.

ANSWER.—The best treatment of echinococcus infection of the liver is prophylaxis. This should consist of avoiding, as far as possible, intimate companionship with dogs. Persons should wash their hands thoroughly after handling dogs. Foods should be thoroughly cleaned and washed before eating. Care should be taken that drinking water has not become con-

Many drugs have been tried in the treatment of this disease. Some favorable results have been reported in individual cases, but the number of patients who have been treated with any one drug is not sufficient to warrant the recommendation of the drug. There is no specific drug for the treatment of echinococcus infection of the liver. As far as is known, none of the newer drugs such as the sulfamido compounds have been used successfully in the treatment of this infection. It is believed that these drugs would not be efficacious in the treatment of parasitic infections. A former mode of treatment, such as aspirating the cyst, has been largely discarded because of the danger and because of the hazard of spreading the infection. The injection of certain antiseptic substances such as phenol, alcohol, iodine and solution of formaldehyde has largely been discarded.

If the parasite dies and the cyst becomes calcified, no treatment is indicated. If the cysts become large and troublesome they should be excised. If they become suppurative they should be incised and drained.

COHESION BETWEEN VISCERAL AND PARIETAL PLEURA

To the Editor:—Normally one defines negative intrathoracic pressure as the difference between the pull of the elastic tissue in the lungs to collapse them and the intrapulmonic pressure which holds the visceral pleura in contact with the parietal at all times. The question arose as follows: A patient developed pleurisy and it was discovered that the visceral pleura of the entire right upper lobe of the lung became adherent to the parietal pressure, thus obliterating the potential space responsible for the negative pleura had the patient not developed pleurisy in that particular area. Is negative pressure still present in the area when the entire visceral pleura has become adherent to the parietal pleura, assuming that the right middle and lower lobes and pleura are still normal? Are the forces defined under negative pressure normally still present when one develops a pleurisy and as a result the pleurae become adherent? M.D., N. Y.

ANSWER.—To speak precisely, there is no negative pressure in the pleural cavity because under normal conditions there is no pleural cavity. The retractile force of the stretched lungs is exerted against the cohesive force between the visceral and parietal layers of the pleura. When these two layers have become adherent, the force is still exerted in the same direction. Instead of being exerted against the cohesion of the two layers, it is now exerted through the adhesions and so, as under normal conditions, is transmitted to the ribs, intercostal tissue and even the overlying muscles, fat and skin, as is evidenced in thin persons by the retraction of the intercostal spaces on deep breathing. This retraction occurs whether or not there are adhesions.

RAPID DEVELOPMENT OF UTERINE FIBROMYOMAS

To the Editor:—Please let me know whether it is possible for a fibroid tumor of the uterus the size of a three months pregnancy to grow within a period of three months. The patient was operated on and a fibroma of the uterus was removed. The symptoms of bleeding existed only during and following the last period two weeks before operation and there were no other symptoms previously. Have any fibroids at any time been known or recorded anywhere that have grown so rapidly in so short a time? M.D., New York.

ANSWER.—It is possible for a fibroid tumor, not palpable on examination by a skilled gynecologist, to develop to the size of a three months pregnant uterus within a period of three months. This statement should not be made without explanation. In most instances the supposedly rapid increase in size is ascribable to failure to recognize the true size of the growth at the time of the preliminary examination. Nearly all tumors which have really developed rapidly reveal evidence of excessive vascularity, hemorrhage into the tumor, necrosis with infection or malignant degeneration. Pure myomas also develop rapidly in a moderate percentage of cases, in contrast with firmer fibrous or fibromyomatous growths.

ESTROGENIC SUBSTANCE AND MIGRAINE IN MEN

To the Editor:—Some of my colleagues have been using injections of estrogenic substance to prevent or delay attacks of headache and nausea in women suffering from migraine. I have used it to a limited extent with encouraging results in women. A man aged 26 has suffered from fairly typical migraine since childhood. I wish to ask your advice on the use of estrogenic substance or some comparable substance for the control of migraine in men. Edward Bloir, M.D., Healdsburg, Calif.

ANSWER.—Although there are many favorable reports concerning the use of estrogenic substance for women suffering from migraine, several years' observation of this type of treatment has in other hands shown rather questionable results. So far as known, such type of treatment has not as yet been used for men.

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SOME WAR ASPECTS OF MEDICINE

REPORT OF THE CHAIRMAN OF THE COUNCIL ON
MEDICAL EDUCATION AND HOSPITALS

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STANFORD UNIVERSITY, CALIF.

Minorities' sponsoring causes in which they believe make most of the policies of democracies. The doctor believing in himself and in medical work has through his organizations interested himself in medical education in order to give assurance that those who care for the sick know their business. One of the striking chapters in the history of education covers the part played by the American Medical Association in influencing the development of sound medical education in the United States. If the public had had to wait for conditions to develop so that a majority would interest itself in seeing that good medical schools were provided, we would have but few of these schools today. It was the understanding of the physician and his willingness to take the responsibility and to do the work that has made possible this Council with its influence on medical education and hospitals.

Over the last few decades every one will admit that there has been a steady improvement in medical schools, in the kind of training received by the doctor, in the hospital training of the young physician and in the hospitals themselves.

During the past year the activities of the Council have been along the usual lines. We can report that most of the medical schools have made substantial recovery from the difficulties in which they found themselves as a result of the depression. All of them are handicapped, as are the universities and research institutions, by the declining income that has resulted from the lowered interest rates which are now prevailing. Even though the processes of medical education have become more expensive, owing to the increase in the facilities required for modern medical training, there has been sufficient financial support to keep abreast of the best in medical education as far as the majority of our institutions is concerned.

The reports received from a large number of medical schools and follow-up inspections of others indicate that, as a result of the Council's survey during 1934-1936, substantial improvements have been and are being made. Where facilities have been inadequate the size of classes has been reduced, entrance requirements have been raised in a certain group of institutions, the teacher-student ratio in the basic medical science depart-

ments is now 1:8 as compared to 1:11 in 1934, clinical facilities have been improved, budgets have increased, and curriculums have been revised.

The Council has undertaken a program of cooperation with the various specialty boards looking toward the establishment of uniform standards in the field of graduate medical education and the elimination of unnecessary duplication in the inspection of hospitals which undertake to train residents in the various specialties. Negotiations have already been completed or are under way with thirteen boards. Official information is secured from hospitals on forms printed in triplicate so that one copy may be retained by the institution, one copy by the Council and one by the special examining board concerned. The actual inspection of the hospitals is carried out by members of the Council's staff. Copies of the reports of these inspections are likewise transmitted to the examining boards. It is expected that in the final evaluation of residencies and fellowships the conclusions of the Council and of the boards will be identical, so that it may be said that any institution approved by the Council will be equally acceptable to the specialty boards.

Conferences have been held between the Trustees of the American Medical Association and the Board of Regents of the American College of Surgeons, and also between members of the staff of the Council on Medical Education and Hospitals and the administrative staff of the College of Surgeons. These conferences have resulted in closer cooperation and collaboration in the collection and publication of hospital statistics.

According to the latest figures compiled there are 6,226 hospitals registered by the Council, having a bed capacity of 1,195,026 and 58,764 bassinets, 9,879,244 admissions and an average daily census of 996,483. Of these 736, with 7,998 internships, are approved for this training, and 555 are approved for 4,709 residencies. In addition, the Council lists 154 schools of laboratory technic, 16 schools offering courses in physical therapy, and 6 schools of occupational therapy, all of which are approved by the Council.

Since the first classification of medical schools and the publication of the Carnegie report there has been probably no five year period which has witnessed such activity and progress in the field of medical education.

Medical licensure statistics published in 1940 revealed that 6,043 physicians were licensed (for the first time) to practice medicine. Here is no indication of a dearth of doctors. Quality, however, is more important than quantity, and in this respect the situation is less satisfactory. One hundred and ninety-five graduates of unapproved schools were admitted to practice in thirteen states. A still more serious degradation of the standards of medical practice results from the trend in recent years to abolish the restrictions which have heretofore

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governed the practice of osteopathy. In seven states medical licenses have been issued to 118 osteopaths who are not graduates of any medical school. During the year also 925 licenses have been issued to graduates of foreign faculties of medicine.

A revision of the "Principles Regarding Graduate Medical Schools" was ratified by the House of Delegates in June.

RESPONSIBILITIES OF THE COUNCIL

Acting on the request of the Reference Committee on Medical Education of the House of Delegates last June, the following resolution was presented and approved, clearly indicating to the public and to the medical profession the responsibilities of the Council in the field of medical education and the channels through which these responsibilities are to be discharged:

WHEREAS, When the American Medical Association was organized in 1847 the following statement was contained in the Plan of Organization: "Inasmuch as an institution so conducted as to give frequent, united, and emphatic expression to the views and aims of the Medical Profession in this country must at all times have a beneficial influence and supply more efficient means than have hitherto been available here for cultivating and advancing medical knowledge, for elevating the standard of medical education, for promoting the usefulness, honor, and interests of the Medical Profession, for enlightening and directing public opinion in regard to the duties, responsibilities and requirements of medical men, for exciting and encouraging emulation and concert of action in the profession, and for facilitating and fostering friendly intercourse between those who are engaged in it"; and

WHEREAS, In successive years the Committee on Education reported on existing conditions and made recommendations for the sound development of medical education in this country; and

WHEREAS, Immediately after the reorganization of the American Medical Association in 1902 more active measures were taken to examine and appraise the existing facilities for the training of physicians, leading, in 1904, to the establishment of the Council on Medical Education as a standing committee of the House of Delegates; and

WHEREAS, The Council conducted the first comprehensive survey of medical schools that was ever made and later secured the assistance of the Carnegie Foundation for the Advancement of Teaching, which sponsored the extraordinarily influential Flexner report; and

WHEREAS, Over a period of thirty-five years the Council on Medical Education and Hospitals has, through its inspections, reports, and published classifications, steadily raised the standards of medical education and practice; and

WHEREAS, Throughout the period of its existence the Council has sought attainment of objectives equally beneficial to the medical schools, the hospitals, the interns, the medical profession and the public; therefore be it

Resolved, That the House of Delegates reaffirms its approval of the activities of the Council; and be it further

Resolved, That the Council is hereby directed to continue to discharge those functions outlined in chapter IX, section II, of the By-Laws, namely (1) to investigate conditions of medical education including premedical, undergraduate and graduate medical education, hospitals and associated subjects and to suggest means and methods by which the same may be improved; (2) to endeavor to further the realization of such suggestions as may be approved by the House of Delegates.

The faculties of medical schools have been classified with respect to availability for medical service. An alphabetical list is now in the possession of the Surgeon General of the Army and the surgeon of each corps

The Council has now in process of preparation part II of the Council's study of graduate medical education in the United States. This volume will deal with institutional apprenticeships; namely, internships, residencies and fellowships.

NEW CONDITIONS TO BE FACED

We now face an entirely new set of conditions. With the various emergencies and the changes that they have brought about in finances, as well as all sort of controls, and with compulsory military training under the Selective Service Act of Oct. 16, 1940, we are in the midst of forces that may bring harm to all that has been built up through the past five decades unless great care is taken.

Under the Selective Service regulations, except for the current year, there is no exemption provided for medical students, nor have we protection in the law for instructors, residents, interns, hospital staffs and faculties of medical schools. What happens to them depends on the gambling chances of a numbered Selective Service and the wisdom or lack of wisdom of the draft boards. Because of inattention or for some other reason we have neglected to give the protection to medicine that was found requisite through our own experience during the last World War and that has been generally accepted by belligerents in the present war as a sign of reasonable common sense.

It would seem about time that those who believe in what medicine can do and in its destiny should again take hold of the situation and give the public and the soldiers the protections that in a long war can come to them only by maintaining our student bodies in the medical schools, our faculties of medicine and our staffs in the hospitals. There should be no element of chance in this matter. We should do what we have to do with devotion to the requirements of our country in time of strain; but we as medical men should have the voice as to what is important to protect in medical institutions and in the maintenance of our medical institutions.

Certainly the medical care given a modern army is of the utmost importance. We need only remember that a century and a half ago those European armies that had organized and efficient medical care were able to keep their fighting forces available for action with less human wastage than their opponents. From that time on the doctor began to count in offensive military programs. With the development of modern medical science the trained physician has become indispensable in military affairs, not only in the care of the wounded and sick, but also from the standpoint of prevention of disease and for the selection of those men capable of the strain of military life.

So indispensable has become the doctor that now when we speak of bringing a hundred thousand men into military service we take it for granted that a certain percentage of these men will be trained physicians and others connected with medical and hospital services. The European nations now find under the exigencies of so-called total war that the care of the civilian population must be guided to a considerable extent by the men of medicine. The dislocation of large groups in the population, the spread of diseases associated with deprivations of food and with famine, and the spread of contagious diseases all require the expert in the laboratory as well as in the clinic and the hospital.

Our country is well entered on a great mass operation of defense. This extends certain of our activities and limits others, but in no way does it change the essential fact that the defense of a great democracy will require as many, if not more, thoroughly trained medical men as in the times of peace. While we can drain off a certain number of our active practitioners into the service of the army, navy and public health, we cannot diminish the numbers taking medical training, nor can we speed up that training beyond a certain point without obtaining an unsatisfactory result.

In other words, the present crisis demands more and better and more up-to-date medical students if we are to face the future with equanimity and without undue concern. We know from long experience that the process of selecting young men and women each year to be recruited by our medical schools is not a simple one. Only a certain percentage of our young people are fitted by temperament, intellectual capacity and physique to take up the arduous study of medicine. We must guard against having them diverted into some form of required military service so that they are lost to medicine. If those in authority in this country are wise they will make provisions through legislation so that no medical student can be drafted or volunteer, and so that those who are proposing to study medicine are given adequate trial before they are drafted into some other line of duty. After the first hospital year (which is really a part of medical education) is completed then the young physician can be relieved for such military or civilian service as seems most appropriate for his qualifications or as most needed. It will be difficult to maintain the further training in the hospital which is required for those who are to be specialists; but provisions for this should be made and authority given to those who head our medical institutions to save from the waste of ordinary military service those who show special skill in either the laboratory or the clinic. It may be that the best procedure would be for them to be drafted and then sent back to the medical institutions or hospitals concerned.

For years we have talked about preventive medicine. We have built up our whole scheme of medical practice in relationship with the public health authorities, so that prevention is a part of the everyday practice of medicine. Now that we face the need of bringing the doctor into the best possible relationship to a future that is yet undetermined but is sure to need the skill of a large number of trained men, we should do as we do in preventive medicine and think of the future and not burn out our material because of some preconception or red tape or false idea of what democracy means. Democracy does not mean that we are equal or alike in capacities or interests. It means only that we should be equal in opportunity and in freedom. We must not confuse political equality with equal capacity to do the things that a diversified civilization requires. Democracy can succeed only if it trains those who are to be leaders and accepts their guidance.

We who represent medical schools and medical institutions should take the active responsibility of seeing that medical institutions are not hampered or destroyed or even materially handicapped. We must see that they are kept at their task of preparing as large a number of well trained men and women in the field of medicine as physical and clinical facilities permit.

HUMAN EXPERIMENTAL SCURVY AND THE RELATION OF VITAMIN C DEFICIENCY TO POSTOPERATIVE PNEUMONIA AND TO WOUND HEALING

CHARLES C. LUND, M.D.
AND
JOHN H. CRANDON, M.D.
BOSTON

Since Lanman and Ingalls¹ demonstrated that vitamin C deficiency led to poor healing of experimental surgical wounds in guinea pigs and after operations on children there has been an increasing recognition by other surgeons (Wolfer² and Holman³) as well as by Lanman that this factor may be of importance in surgical operations on adults. Since vitamin C was isolated by Svirbely and Szent-Györgyi⁴ and synthesized by Reichstein and his co-workers⁵ there have been many tests for vitamin C developed for the determination of its content in foods, tissues, urine and blood. It is now realized that certain of the older methods of analysis did not give accurate results, but it is hoped that present methods will be of value within certain rather broad limits.

At the time this study was begun two and one-half years ago little was known concerning the vitamin C status of surgical patients, although Ingalls and Warren⁶ indicated that most patients under medical treatment for gastric and duodenal ulcer had very low levels of the vitamin in the blood plasma. The present study has been focused particularly on the determination of the presence and degree of, or the absence of, vitamin C deficiency among patients of all types coming into surgical wards, and on determining any differences in any aspects of the surgical convalescence of patients according to the deficiency found. It was early found that complementary studies on normal persons were necessary in order to interpret the conditions found in patients.

A paper has been published by one of us⁷ showing that the reduced vitamin C level in the plasma drops markedly immediately after operation but that the patients who show this drop have no clinical signs of scurvy even if the plasma level reaches zero. Several normal persons were put on a diet totally deficient

Read before the Section on Surgery, General and Abdominal, at the Ninety-First Annual Session of the American Medical Association, New York, June 12, 1940.

Dr. Allan Butler and Miss Margaret Cushman performed whole blood and white cell platelet determinations and gave technical advice; Dr. Frederic Parker Jr. and Dr. Kenneth Mallory reviewed the biopsy specimens.

From the Department of Surgery, Harvard Medical School, and the Fifth Surgical Service and the Surgical Research Laboratory, Boston City Hospital. This work was aided by grants from the Wellington Fund of the Harvard Medical School and from several anonymous donors. Assistance in securing the data was furnished by the personnel of the Works Progress Administration (projects 14667, 17580 and 21502).

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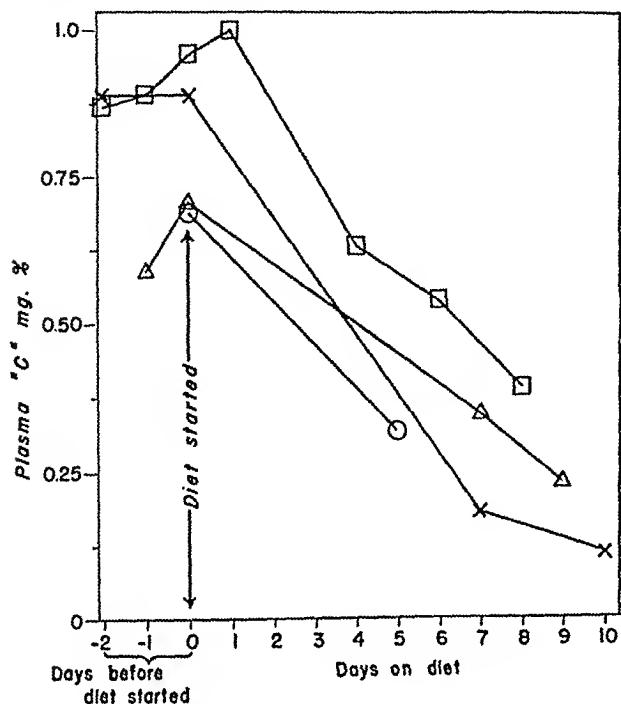
in vitamin C for periods extending up to three weeks. In all these persons the drop was rapid and reached very low levels.

It was known as a result of Emmerie and van Eekelen's⁸ work that a normal person with a maxi-

Last fall the work had progressed to the point at which it seemed to be important to carry out further experiments on the development of human scurvy in the normal person. For this purpose one of us (J. H. C.) went on a scurvy-producing diet on Oct. 19, 1939 and remained on it until May 7, 1940. The diet was supplemented with adequate but not excessive doses of vitamins A, D, E and B complex. A report of this experiment has been published.¹³ Three months after the diet was started a 2½ inch (6 cm.) experimental wound was made down through the deep fascia of the lumbar region and a specimen was secured for biopsy in eleven days. No defect in wound healing could be demonstrated on pathologic examination.

Shortly after five months the first sign of scurvy developed (in this instance petechial hemorrhages around the hair follicles of the legs). But three weeks before this hyperkeratotic papules had developed on the buttocks. These contained ingrowing hairs and simulated the lesions associated with vitamin A deficiency. Although there was slight lassitude and ease of fatigue in the fourth and fifth months, marked fatigability began only in the sixth month. No ecchymoses occurred and no changes of the gums.

At exactly six months a second incision was made in the corresponding position in the other side of the back. It was found almost impossible to suture the transversely divided sacrospinalis fascia because the sutures stripped out between the longitudinal fibers, a difficulty which had not presented itself three months



□, X, △, ○ — Each represents a different man

Fig. 1.—Plasma ascorbic acid levels of 4 normal men on a scorbutic diet.

mum storage of vitamin C would not get scurvy as a result of a diet totally deficient in the vitamin in eighty-four days, but they believed that the person studied was close to having scurvy at the end of the experiment.⁹ Van Eekelen followed the urinary output and whole blood level of ascorbic acid during this dietary experiment and found that the urinary output dropped to low levels as soon as the patient started the diet but that the level in the blood fell gradually in a straight line at the end of the experiment. Van Eekelen used a method for determination of the vitamin in the whole blood that is difficult, and we have been unable to use it in spite of three months' constant effort in the laboratory.

The work reported here was done by Pijoan and Klemperer's¹⁰ method at the start and later by Mindlin and Butler's¹¹ macromethod. The difference in the two methods lies essentially in the use of cyanide in the former. Cushman and Butler¹² have shown that cyanide does no harm (if a proper cyanide is used) but also that it does no good. Most of our determinations were made on blood plasma, except a few determinations of the white cells in our most recent work.

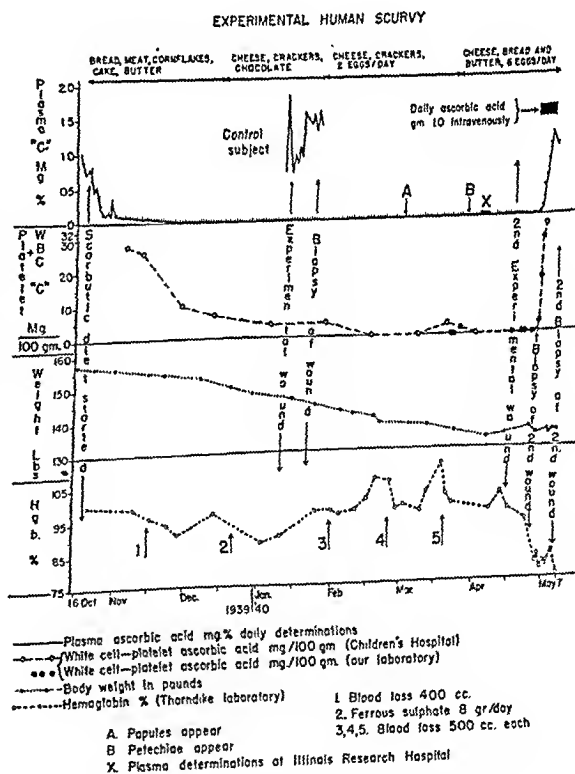


Fig. 2.—Blood chemistry and diet in human experimental scurvy.

earlier. Finally four silk sutures were applied and tied on each side and then brought together and tied in the way tendon sutures are made. There was no difficulty with the latissimus fascia which had been longitudinally

13. Crandon, J. H.; Lund, C. C., and Dill, D. B.: Human Experimental Scurvy, *New England J. Med.* 223: 353-369, 1940.

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divided. This was brought together with a continuous suture. The skin was brought together with interrupted silk sutures.

This wound seemed to heal by first intention. The cutaneous sutures were removed on the sixth day and



Fig. 3.—Normal healing at three months. Wound eleven days old.

adhesive strips applied to protect the skin from tension. On the tenth day the wound was reopened for biopsy. It was found that the area was slightly swollen, but not inflamed and not fluctuant. A careful incision was made with every effort to put as little pulling strain on the wound as possible. As soon as the skin was divided it was found that the tissues under the skin had not healed at all and that the wound contained a firm dry blood clot. A section of skin including subcutaneous fat was removed for examination and showed no healing at all.

The blood clot was then scooped out, and pieces of the fascia which had pulled apart entirely were also removed. The latissimus fascia was then sutured and the skin sutured. That afternoon the subject was given 1 Gm. of ascorbic acid intravenously, and this was repeated daily for the next ten days while the subject remained on the same scorbutic diet. The wound healed promptly this time. At the end of the second ten days another incision was made directly across the area of the wound that had been pulled apart during the previous operation. This section, shown in figure 6, demonstrates normal healing.

The plasma level fell as rapidly as in the case of previous short period studies and after reaching zero at the end of forty-one days remained at this level. Determinations of the ascorbic acid in the white cell and platelet layer of centrifuged plasma were done for us by Butler and Cushman at the Children's Hospital

according to their new method.¹⁴ (They also checked our plasma determinations every two weeks.) The content of this layer, which is normally 30 to 40 mg. per hundred grams, fell much more gradually than the plasma level, reaching zero only after one hundred and twenty-two days. It was immediately after this date (the one hundred and thirty-second day) that the hyperkeratotic papules mentioned earlier in this paper first appeared, but only after twenty days more did the first characteristic petechiae appear.

Throughout the course of the experiment a gradual persistent loss of weight occurred. It is believed that this weight loss was due to inability to eat enough of the limited diet on account of its monotony (eggs, cheese, bread, butter, chocolate and coffee). There was no gain in the final ten day period on the diet while the subject was receiving ascorbic acid, but as soon as he went off the diet he gained a pound (0.5 Kg.) a day for a while.

The hemoglobin determinations were done for us by the Thorndike Memorial Laboratory by a modification of the Klett-Summerson photoelectric method. The original level was about 100 per cent of 15.6 Gm. per hundred cubic centimeters, and there was no appreciable fall for two months. Early in the third month a slight fall occurred which was rapidly reversed by adding 8 grains (0.52 Gm.) of ferrous sulfate daily to the diet. From the start a considerable burden was placed on

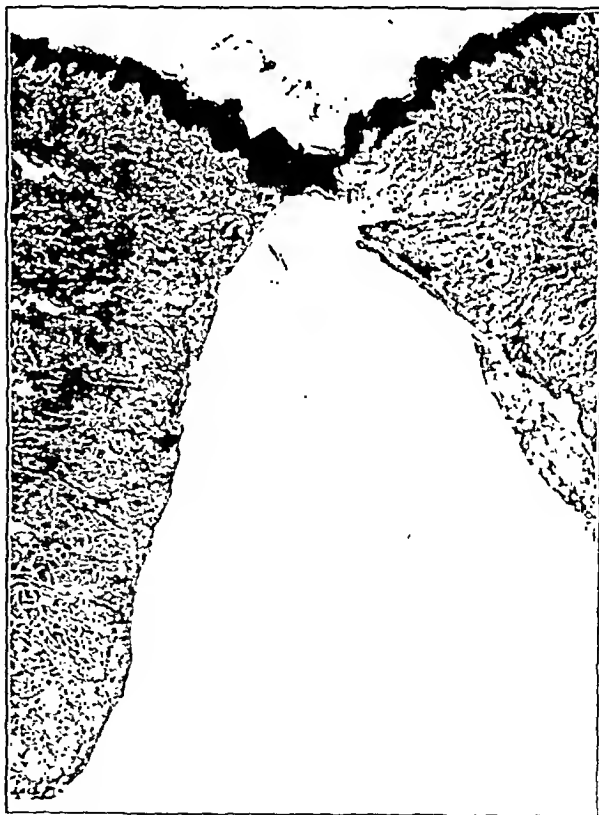


Fig. 4.—No healing at six months. Wound ten days old.

the hemopoietic system because of the steady daily loss of at least 10 cc. of blood for various determinations, and this was intensified by the four additional major

14. Butler, Allan M., and Cushman, Margaret: Distribution of Ascorbic Acid in the Blood and Its Significance, *J. Clin. Investigation* 19: 459-467 (May) 1940.

episodes of blood loss indicated in figure 2. At the time vitamin C was given to terminate the experiment the level was 93. During the next ten days a fall occurred to 76. But during the first five days of this period the blood loss was 150 cc. a day because of saturation experiments. The final loss was too rapid for the hemopoietic system to take care of.

From this part of the experiment it would appear that, in a six month period, vitamin C deficiency per se does not produce anemia.

As a result of this study to date it can be definitely stated that a blood plasma level of zero does not necessarily mean the presence of scurvy or even of a vitamin deficiency that is close to clinical scurvy, or that such a level indicates any necessary interference in wound healing. Confirmation of this statement is derived from



Fig. 5.—Formation of granulation tissue without intercellular substance.

Butler's work in that he showed that it is possible to cure clinical infantile scurvy by giving small doses of ascorbic acid to infants but without bringing their plasma vitamin C levels above 0.2 mg. per hundred cubic centimeters at any time.¹⁵ On the other hand, absence of wound healing was demonstrated in six months. At just what point between three and six months delayed healing begins we cannot say.

VITAMIN C INTAKE AND PLASMA LEVELS IN RELATION TO PULMONARY COMPLICATIONS OF SURGICAL CASES

Ralli and her co-workers¹⁵ have shown that the blood plasma level becomes adjusted rapidly to the average dietary intake of the vitamins in normal

persons when there is no excessive demand for the vitamin (such as occurs in fever or other causes of increased metabolism, or in patients with diarrhea or other causes of poor absorption). The level becomes adjusted in two weeks when the diet is altered and then kept constant.

In the present study an effort has been made to secure and record histories and, if possible, day to day calculations of the dietary intake with regard to vitamin C and to correlate the results with the data derived from plasma values. Such histories can be only roughly accurate and vary greatly in accuracy according to the intelligence of the patient and the patience of the interviewer.

However, in patients not suffering from fever or other abnormal metabolism of the vitamins there is a reasonable correlation between such dietary calculations and the values actually found.

It has been claimed that vitamin C is important in the defense against infections, but no conclusive proof of this claim has been made. Since pulmonary complications are common after surgical operations of magnitude it was decided to see whether such complications were more frequent in patients with high intake and levels of vitamin C than in those with low intake and levels. In making this study as many blood specimens were taken preoperatively as possible and a careful dietary history of the intake of food during at least one month up to the time of the operation. From the dietary histories calculations were made as to the approximate number of Sherman units of vitamin C in the diet. (Two Sherman units equals 1 mg. of vitamin C.) One hundred mg. daily of the vitamin is admitted by all workers to furnish an adequate supply to the normal person.

Before making up the table to be presented the cases were individually studied and classified in all possible ways. It was found that the intake of vitamin C and its level in the plasma of the patients were on the average both much lower than saturation levels. In fact only 17 out of 109 patients in the accompanying table had an intake of sufficient vitamin C to keep them saturated. For this reason it was decided to group the patients according to diet into three classes with the first, or highest, made up of those taking 50 units, or 25 mg. or more a day. Many of these patients had a slight vitamin deficiency, but all were probably well protected against scurvy. The intermediate class is made up of the patients taking from 20 to 49 units a day, and the lowest class, those taking less than 20 units. In the same way the patients were grouped according to the level of the reduced plasma vitamin C, with the high class those with levels from 0.50 mg. per hundred cubic centimeters and over. The intermediate class had levels from 0.20 mg. to 0.49 mg. and the low class up to 0.19 mg. per hundred cubic centimeters.

Many may think that the dividing lines given here are too low, but the real difficulty is that probably most of the patients in the lowest class are still not close to clinical scurvy. The plasma determinations on the patients were multiple in more than half the instances, and good checks of multiple determinations were made except in five instances. Two determinations were done on 31 patients, three on 11, four on 7, five on 5, and seven on 2 patients.

15. Ralli, Elaine P.; Friedman, Gerald J., and Sherry, Sol: The Vitamin C Requirement of Man Estimated After Prolonged Studies of the Plasma Concentration and Daily Excretion of Vitamin C in Three Adults on Controlled Diets, *J. Clin. Investigation* 18:705-714 (Nov.) 1939.

The operations consisted of various common procedure done for disease of the gallbladder. Eighty-six operations were simple cholecystectomy for acute (thirteen) and chronic (seventy-three) cholecystitis with and without stones. Eleven operations were cholecystectomy with exploration of the common duct. In 5 cases the common duct alone was drained. Cholecystostomy was done four times and cholecystostomy and choledochostomy three times.

The complications consisted of atelectasis nine times and bronchopneumonia eight times. It is often difficult to distinguish between these two diagnoses. In general the less severe cases were called atelectasis. If each diagnosis is studied separately the results are no different from the results given later in this paper. Also, if the cases of cholecystectomy for chronic cholecystitis are studied separately no difference is found. Statistical analysis of the accompanying table will show that there is no significant correlation of the diet or of the blood level to the development of postoperative pneumonia or atelectasis. It is curious that all three fatalities from pneumonia occurred in patients with both a high intake and a high level. The data on these 3 patients follow: In one the diet calculated was 180 units of vitamin C daily, and three plasma determinations were done showing 0.85, 1.08 and 0.98 mg. per hundred cubic centimeters. The next patient took 26 units daily, and her plasma level was 0.65 mg. The third took 55 units daily and showed 0.50, 0.53 and 0.48 mg. in the plasma. Two of these patients were obese.

Similar studies have been made in regard to other operations but will not be presented here. As far as we have gone they show the same lack of correlation mentioned previously. Other studies have been concerned with postoperative sepsis of wounds. Again no data need be presented as they show no correlation between sepsis of wounds and vitamin C.

Of considerable interest in this connection is the fact that the subject of the dietary experiment mentioned previously had only two minor "colds," lasting two days each, and no other infections during the experiment. This minimal amount of infection is unusual for this subject, who in past winters has invariably suffered from frequent and more severe infections of the upper part of the respiratory tract.

From this one cannot conclude that vitamin C is not necessary once infection has started and particularly in patients with serious long-continued sepsis when the reserves may be depleted more rapidly than is the case when lack of the vitamin in the diet is the only factor.

WOUND HEALING

The relation of wound healing to vitamin C in surgical patients is, of course, one of the most important studies that can be made. Our data on the following cases show certain aspects of this problem. It is recognized that wound healing is the result of many factors and that of primary importance is good surgical approximation with sutures that do not cut out and are not removed before the wound has reached enough tensile strength to hold together. Also the factor of decreased plasma protein is recognized but has not been studied in these cases.

REPORT OF CASES

CASE 1.—*History*.—L. L., a man aged 59, a fish handler, had carcinoma of the stomach. His diet had been inadequate for months. There had been preoperative loss of 50 pounds

(22.7 Kg.). Anterior gastroenterostomy was done, including closure with no. 2 catgut. No note was made as to whether fascia sutures were interrupted or continuous or as to the number of stay sutures.

Disruption occurred on the tenth day, within two hours of removal of the stay sutures, but there was no infection in the wound. The wound was resutured under local anesthesia.

Vitamin Study.—Two days after resuture, the blood plasma level of reduced ascorbic acid was 0.00. Ascorbic acid, 600 mg., was given daily intravenously for three days. After three days of such treatment the level was still 0.00. Then 300 mg. a day was given by mouth for seventeen days, at the end of which time the level was found to be 0.54 mg. per hundred cubic centimeters.

Since the vitamin level failed to rise from zero after 1.8 Gm. had been given in three days the deficiency



Fig. 6.—Normal healing at six months and ten days. Wound ten days old.

was severe and probably was the main cause of the disruption. However, the surgical technic was also open to question.

CASE 2.—*History*.—A. A., an unemployed man aged 65, had acute intestinal obstruction from a band. His diet had been excellent up to four days before operation, which was performed for separation of adhesions. The closure was not specified, except that it was in layers. Sutures were removed on the ninth day.

Separation of the wound occurred up to the peritoneum on the tenth postoperative day without infection in the wound, which was packed and strapped.

Vitamin Study.—The next day the blood plasma ascorbic acid level was zero.

In treatment 300 mg. daily of ascorbic acid was given by mouth from the tenth to the twenty-second postoperative day. The blood plasma level of ascorbic acid on the twelfth day was zero, on the nineteenth day 0.53 and on the twenty-third day 0.81.

In spite of the zero plasma level at the time of separation of skin and fascia it is believed that the fault in this case was surgical. It is not believed possible that a deficiency which could interfere with healing could occur in such a short time. In addition, seven daily doses of 300 mg. would not bring the plasma vitamin C content of a scorbutic patient up to the level of 0.53.

CASE 3.—History.—R. F., a man aged 38, a shipper, had an abscess of the appendix. His diet had been adequate up to his present illness, which had lasted ten days, with pain and vomiting, before admission and five days after admission. At operation drainage of the abscess without appendectomy was through a right rectus incision. Closure was done in layers with no. 2 chromic catgut. Disruption occurred thirty-three days post-operatively.

Vitamin Study.—A plasma vitamin C level of zero was found on the two days preceding the operation and on the fifteenth day after it. No vitamin was given the patient.

*Relation of Vitamin C Intake and Plasma Level of Reduced Ascorbic Acid to Pulmonary Complications in Patients Having Biliary Operations:
Diet = Sherman Units **

Plasma, Mg. per 100 Cc.	50 and Over	20-49	0-19	Total
0.50 and over.....	5*	0	0	5*
	20	10	0	30
0.20-0.49.....	2	3	0	5
	17	15	3	35
0.0-0.19.....	2	1	4	7
	7	11	17	35
Total.....	9*	4	4	17*
	63	36	20	109

* The figures are in the form of fractions. The numerator indicates the number of patients with pulmonary complications in each category and the denominator the number of patients among whom these complications arose. Two deaths occurred in the series not indicated on the chart. One occurred two months after operation for prostatic obstruction and the other from pulmonary embolism proved at autopsy. The asterisk indicates that 3 patients died of pneumonia.

The convalescence was stormy. Fever was present during the whole time from admission to disruption, and the intake of vitamin C was negligible. Vomiting occurred, and Wangenstein drainage was used a good part of the time for three weeks after the operation was performed.

Although presumably the patient had no important deficiency on admission (on the basis of dietary history) one cannot assume that the poor healing in this case was due to surgical factors or sepsis alone, as one has no information on the length of time it takes for scurvy to develop under these conditions.

CASE 4.—History.—M. A., an unemployed man aged 55, had an obstructing duodenal ulcer and tertiary syphilis. His diet had been inadequate and he had lost 50 pounds (22.7 Kg.). There had been use of large amounts of alcohol. There was complete retention of barium for six hours. As preoperative treatment, gastric drainage and hydration were done. A transverse incision was made and posterior gastroenterostomy was performed. The peritoneum was closed with continuous no. 0 chromic catgut and the fascia with interrupted no. 0 chromic catgut. Silk stays were tied over gauze. Sutures were removed on the sixth day and disruption occurred five hours later.

Vitamin Study.—One month after disruption the blood plasma level of vitamin C was zero on two different days. Ascorbic

acid tablets were not given but the diet had contained 175 units daily after the fifth postoperative day. Secondary sutures were removed on the twenty-second day after resuture.

In this case the disruption is believed to have been due in part to vitamin deficiency. We were informed that ascorbic acid had been given in adequate doses. After disruption it was found that this had been given by mouth, and probably none of it had been absorbed before the first operation.

In a case such as this, in which there is complete pyloric obstruction, the administration must be by the intravenous route. However, the removal of stay sutures on the sixth day is not good technic.

COMMENT

The observations made in the three sections of this report indicate that a careful study of the vitamin C status of surgical patients is valuable. Plasma determinations alone, if low, are not sufficient evidence on which to base treatment as the great bulk of patients with such levels are in no known danger from the deficiency. However, a history of months or years of inadequate intake, such as is seen so frequently in patients who have, or who think they have, gastric or duodenal ulcers, is ample evidence on which to base active treatment. Patients with diarrhea have not been presented in this paper, but such patients and patients with chronic sepsis probably need a higher intake of the vitamin to protect them from scurvy than those without these conditions. Therefore both fever and diarrhea must be considered in estimating the probable reserves of vitamin C in the patient's tissues. No evidence is presented here, but there is ample evidence elsewhere that most patients with scurvy are also suffering from multiple deficiencies. If treatment is indicated at all it is probably wise to give large doses of other vitamins when large doses of vitamin C are given. Of these it is our belief at present that thiamine hydrochloride and nicotinic acid are the most important ones for surgical patients. We now believe that such patients as 1 and 4 should be given ascorbic acid 1 Gm., thiamine hydrochloride 30 mg. and nicotinic acid 100 mg. daily for four days before operation.

CONCLUSIONS

1. A vitamin C free diet produced scurvy in one of us at the end of five months, and certain symptoms of it were severe at six months.
2. The ascorbic acid level of the blood plasma fell to zero in forty-two days and of the white blood cells in one hundred and twenty-two days.
3. A wound healed well after the subject had been three months on a scorbutic diet but not after six months.
4. There is no correlation between vitamin C intake and plasma levels and the incidence of postoperative atelectasis and pneumonia.
5. Vitamin C deficiency may be a factor in failure of some human wounds to heal.
6. A dietary history should be taken on all patients who come to major surgery and, if a long-continued marked deficiency of the intake of vitamin C is found, the patient should be given daily from 1 to 4 Gm. of ascorbic acid.

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PLASMA VITAMIN C AND SERUM
PROTEIN LEVELS IN WOUND
DISRUPTION

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DETROIT

The problem of disruption and evisceration of abdominal wounds still remains unsolved, and the comparative importance of the various factors concerned with the production of this condition still remains in dispute. In a recent review of the literature, two of us¹ analyzed 1,458 collected cases, including 33 cases occurring in the surgical service of the City of Detroit Receiving Hospital. As a result of this study, we came to the following conclusions: The incidence of this catastrophe is probably about 1.5 per cent, with a mortality of about 35 per cent. The age, sex and race are unimportant factors. Seasonal variations may have some bearing as far as they predispose to respiratory infections. The period when disruption is most likely to occur is from the fifth to the tenth postoperative day, the eighth day being the average.

Logically the causes for failure of a wound to heal normally lie in the conditions affecting and retarding wound healing. Locally, one must consider incisions placed without regard to injury of the nerve and blood supply, as well as the severance of the transversus abdominis muscle, frequently making for a weak closure of the deep layer of the abdominal wall. Faulty technic resulting in traumatization of tissue and poor hemostasis, injudicious choice of and method of using suture material and the presence of infection are considered to predispose to wound disruption. In addition, those conditions tending to increase intra-abdominal tension, such as undue coughing, vomiting and intestinal distention, are thought to be of importance. They not only make for increased strain on the suture line but also interfere with immobilization of the part. In addition to the local factors pertaining to the wound itself, there are certain general factors which undoubtedly exert an influence on wound healing. The underlying disease or the presence of concurrent systemic disease resulting in a poor general condition of the patient must not be overlooked. Any condition of the patient resulting in a nutritional deficiency sufficient to produce low levels of ascorbic acid in the plasma and of protein in the serum of the blood must be considered important. There is also the possibility of an allergic response to catgut.

At the completion of this review, we felt more in doubt than ever regarding the relative importance of the various factors contributing to disruption of the abdominal wound. In reviewing the work of other writers and in summarizing our own case records, we were impressed that we were attempting to draw conclusions from inaccurate and incomplete data. Too frequently it has been necessary to study records which lack sufficient information to afford a basis for forming

satisfactory conclusions. The basic problem is one of wound healing, and it is difficult to evaluate its components even when a direct attempt is made in an individual case. If a study of a series of cases of wound disruption is to be of real value, it would seem logical to attempt analysis of each case as it occurs, with special emphasis on the contribution played by each of the many possible factors involved. Consequently we began to collect a new series of instances of disruption and to obtain data from a study of the patient rather than of the record.

It would seem logical to consider the distended, delirious patient, thrashing about in bed, coughing and vomiting, with a large infected abdominal incision, a candidate for wound disruption; yet his wound usually heals without separation. Consequently, when disruption of the wound does occur, the cause seems all too obvious. Pneumonia, diabetes and other serious concurrent systemic disease may predispose to disruption, but most patients suffering from these conditions have normal healing. On the other hand, consider the patient who has been afebrile for from three to five days, eating and drinking, urinating and defecating normally, without cough or nausea, whose incision appears to have healed and then, for no apparent reason, opens wide. This wound may appear clean, as though freshly incised, with no evidence that there has been any tendency to heal. In an attempt to find some cause, one is prone to ascribe this catastrophe to some definite inability on the part of the patient's tissues to heal. Possibly these factors are present also in the wound which disrupts in the presence of infection and with a stormy postoperative convalescence.

Recently there has been much interest about hypoproteinemia and vitamin C deficiency in relation to wound healing. The effect of low serum protein on wound healing has been studied by Carrel,² by Harvey³ and more recently by Thompson, Ravdin and Frank,⁴ who thus summarize the work on this phase of the subject:

Clark⁵ showed that on a diet high in protein there was no quiescent period in the repair of the wound in his dogs, the contraction beginning at once. In the review of Arcy⁶ on "Wound Disruption," one is struck with the fact that many of the factors associated with repair are directly or indirectly dependent on a diet high in protein. Thus, animals fed on a diet of this type showed accelerated fibroblastic proliferation. Cellular activity on the whole greatly increased. The quantity of secretion from the wound was decreased. A diet high in carbohydrate, to which alkalis had been added, increased the quantity of this secretion. The wounds of animals on an alkaline diet are said to be more easily infected.

Thus there are a number of factors, both in the dog and in the patient who is subjected to a prolonged and serious protein deficiency, which favors disruption of the wound. It has been observed that, when cultures of growing cells are surrounded by an overabundance of fluid of low viscosity, cell motility is retarded. Our experiments would tend to support the theory that certain of the amino acids are essential for the stimulating of tissue growth.

These authors found, in a high percentage of dogs with well advanced hypoproteinemia, that evisceration or breakdown of the wound will occur after laparotomy.

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3. Harvey, S. C.: Velocity of Growth of Fibroblasts in Healing Wound, *Arch. Surg.* 18: 1227-1240 (April) 1929.

4. Thompson, W. D.; Ravdin, I. S., and Frank, I. L.: Effect of Hypoproteinemia on Wound Disruption, *Arch. Surg.* 36: 509-508 (March) 1938.

5. Clark, A. H.: The Effect of Diet on the Healing of Wounds, *Bull. Johns Hopkins Hosp.* 30: 117-120 (May) 1919.

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Thompson, Ravdin, Rhoads and Frank⁷ found further that catgut loses its tensile strength more rapidly in tissues in the presence of hypoproteinemia and also that they could restore serum protein to normal in hypoproteinemic dogs by means of intravenous injections of lyophile plasma, and in these animals the wound healed normally. Whipple and Elliott⁸ and Stone⁹ also believe that hypoproteinemia is a factor in the production of wound disruption.

Experimental data have shown that vitamin C deficiency plays an important role in wound healing in the laboratory animal. Aschoff and Koch¹⁰ in 1919 stated that in cases of scurvy the main primary deficiency was a lack of intracellular cement substance. Hojer¹¹ in 1924 verified these observations in the scorbutic guinea pig and noted changes which were due to a lack of collagen. Wolbach and Howes¹² demonstrated that the histologic basis for the failure of wounds to heal in the presence of vitamin C deficiency lies in the inability of the supporting tissues to produce and maintain intracellular substance, and later Menkin, Wolbach and Menkin¹³ found that microscopic sections of tissues of

cultures of fibroblasts a sudden increase in collagen fibrils when ascorbic acid was added to the medium. Wolbach¹⁷ states that deficiencies of vitamin C result in abnormalities of all intracellular substances having collagen as their basis and that its absence prevents the formation of the matrices of white fibrous tissue, bone, cartilage and dentin. He states further that in vitamin C deficiency the pathologic picture is produced by resorption of intracellular materials in both growth and reparative reactions. In such instances, if vitamin C is supplied either in natural foods or as the pure compound, histologic repair is immediately resumed.

There are many clinical observations which are in general agreement with the experimental data. Sokolov¹⁴ in 1932 recommended a diet rich in vitamin C and stated that it was his opinion that a partial vitamin C deficiency was a definite factor in poor wound healing. Archer and Graham¹⁹ believe that many patients with gastric disease are in a subscorbutic state owing to long periods of ill health and a restricted diet. They have observed that wounds of these patients heal badly. This is in general agreement with observations made by Hess.²⁰ Lazarus²¹ and McNealy and his associates.²² Youmans²³ believes that, although frank scurvy is rare, in contrast, mild or latent scurvy or a slight deficiency in vitamin C is probably very common. Ingalls and Warren²⁴ report 20 cases of peptic ulcer in all of which there were low vitamin C values. They believe that there is an important relationship between low vitamin C values and the inability of an ulcer to heal and its tendency to bleed. Therefore they urge a check of the vitamin C before surgery is resorted to in such cases. Lanman²⁵ says that asymptomatic scurvy is far more common in infants and children than is realized and presents evidence to show that a partial vitamin C deficiency is of importance in the failure of surgical wounds to heal in human beings.

Madison and Manwaring²⁶ have shown that there is experimental evidence which would indicate that vitamin C aids the body in defense against infectious diseases and that large doses increase antibody production. This is borne out by the work of Smith and McConkey.²⁷ Lund,²⁸ Wolfer and Hoebel²⁹ and Bartlett, Jones and Ryan³⁰ have recently shown that there is a decrease in the concentration of the plasma ascorbic acid following surgical operations. We also have found this to be true. With regard to the 14 cases reported by Bartlett, Jones and Ryan,³⁰ all but 1 presented gastric

TABLE 1.—General Condition in Twenty Cases of Wound Disruption

General Condition	Underlying Disease
Good 9 cases	2 gunshot wounds of the abdomen 1 ruptured peptic ulcer 1 duodenal ulcer with obstruction 1 acute appendicitis 1 chronic infection of gallbladder with stones 1 fibroid uterus 1 ventral hernia 1 chronic appendicitis
Fair 8 cases	1 volvulus of sigmoid flexure 1 perforated carcinoma of stomach (resected) 1 carcinoma of stomach 1 intestinal obstruction 1 chronic appendicitis 1 acute appendicitis 1 chronic infection of 1 simple exploration
Poor 3 cases	1 acute appendicitis with perforation and liver abscess 1 carcinoma of the pancreas with jaundice 1 carcinoma of the stomach (inoperable)

scorbutic animals demonstrated the deposition of increasing amounts of intracellular cement substance depending on the amount of vitamin C administered. Taffel and Harvey¹⁴ report that the tensile strength in stomach wounds of the partially scorbutic guinea pig is much decreased from the eighth to the tenth day. Lanman and Ingalls¹⁵ have shown that guinea pigs maintained on approximately one fifth of the minimal preventive dose of ascorbic acid exhibited healing of operative wounds inferior to those of normal controls. Jeney and Törö¹⁶ were able to demonstrate in "in vitro"

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or duodenal ulcer or a malignant growth of the gastrointestinal tract, while 1 was a very toxic case of exophthalmic goiter. We have found that these types of cases show low values as a routine. We have found also that an excess of 1,000 mg. of vitamin C intravenously is required for saturation in these cases for a twenty-four hour period. Consequently, in view of the fact that all presented low levels of vitamin C in the plasma on initial examination, and in all but one a single dose of 1,000 mg. was given from one day to fourteen days preoperatively, it is our belief that all these cases undoubtedly, if tests had been made one hour before these operations, would have shown very low values. In those cases in which vitamin C determinations were made on the day of operation, the values were low. We have found that the average postoperative drop in eleven controls with normal preoperative values was about 0.05 mg. per hundred cubic centimeters of blood plasma. Lund²⁸ states that in cases in which the preoperative value is low, the postoperative decrease is proportionately greater. He believes that this postoperative drop may be explained by the decreased intake and also by an increased metabolism resulting from the usual postoperative fever. He also believes that the demand of the newly formed tissues which are produced in the

ascorbic acid and serum protein. All the analyses were performed as quickly as possible, the time elapsed not exceeding two hours in any instance. The plasma concentration was determined by the method of Mindlin and Butler³³ and the serum protein concentration by

TABLE 3.—Type of Suture Material Used in Closure—All Twenty Cases Closed in Layers

No. of Cases	Suture Material
2	Fine silk 1 without tension sutures 1 with stainless steel wire tension sutures
4	#000 chromic catgut 2 without tension sutures 1 with stainless steel wire tension sutures 1 with 16 stainless steel wire tension sutures
2	#0 catgut and waxed silk tension sutures
12	#1 and #2 plain and chromic catgut in various combinations 6 without tension sutures 6 with tension sutures—2 silk, 2 wire, 2 silkworm gut
In the 13 cases in which evisceration occurred: Tension sutures were used in 7 Tension sutures were not used in 6	
In the 7 cases in which evisceration did not occur: Tension sutures were used in 4 Tension sutures were not used in 3	

calculation from the total nitrogen obtained by micro Kjeldahl analyses.³⁴

Table 1 groups the 20 cases of wound disruption into three classes, indicating whether the condition was considered good, fair or poor at the time of the primary operation.

Surprisingly enough, the condition in all but three of these cases was thought to be good or fair at the time the case was seen by the surgeon. Malignancy has been emphasized by many as a condition predisposing to disruption. In our review of 1,458 cases 320, or 22 per

TABLE 4.—Nine Clean Cases with Uneventful Convalescence Prior to Disruption

Disease	General Condition	Plasma Ascorbic Acid, Mlg. per 100 Cc.	Serum Protein, Gm. per 100 Cc.	Albumin-Globulin Ratio	Results
Volvulus of sigmoid flexure	Fair	0.13	5.83	1.1	Evisceration
Carcinoma of the stomach	Fair	0.31	5.95	1.2	Evisceration
Chronic appendicitis	Good	0.21	6.22	1.2	Evisceration
Perforated carcinoma of stomach	Fair	0.23	5.92	1.3	No evisceration
Chronic appendicitis and jejunal adhesions	Fair	0.38	5.99	1.3	Evisceration
Cholecystitis and cholelithiasis	Fair*	0.41	5.85	1.2	Evisceration
Carcinoma of the stomach	Poor	0.29	5.44	1.2	Evisceration; died at home
Carcinoma of pancreas	Poor†	0.06	5.70	1.2	No evisceration
Ventral hernia	Good	0.49	5.71	1.2	No evisceration

* Five hundred milligrams of vitamin C given preoperatively.

† Large herniotomy in wound.

cent, presented malignant growths. It will be noted that carcinoma was the underlying disease in 20 per cent of this series. In the course of checking the plasma vitamin C and serum protein levels of the blood in some 200 surgical cases, we have found that those

TABLE 2.—Type of Incision in Twenty Cases of Wound Disruption

17 vertical incisions	12 clean	Evisceration occurred in 11 Evisceration did not occur in 1 (peritoneum not opened)
	5 infected	Evisceration occurred in 2 Evisceration did not occur in 3
3 transverse incisions	2 clean 1 infected	Evisceration did not occur Evisceration did not occur

healing process may use the vitamins at a rate faster than that for normal tissue growth. Wolfer and Hoebel²⁹ stress the large dosage required to bring a patient in a depleted state to, and maintain him at, a state of saturation. Vorhaus³¹ stresses the importance of excessive vitamin therapy, both before and after operation.

The concept of vitamin C deficiency with regard to difficulties in wound healing is not new, descriptions of scurvy having appeared in the literature since the time of Hippocrates. Richard Walter's³² account of Lord Anson's "Voyage Around the World" in 1740 vividly describes the effects of scurvy among the crew: "Scars of wounds that had been for many years healed, were forced open . . . one of the invalids . . . who had been wounded fifty years before . . . and had continued well for a great number of years past, yet, on his being attacked by the scurvy, his wounds in the progress of the disease broke out afresh and appeared as though they had never been healed."

During the year 1939, with the help of colleagues from the staffs of Harper and Grace hospitals, we collected twenty cases of disruption of the abdominal wound at the time it occurred. In each instance the patient was either seen by us or the case was discussed at length with the attending surgeon or the surgical resident in charge, and in each instance samples of blood were obtained for the determination of plasma

31. Vorhaus, M. G.: Hypervitamin Therapy in Surgical Practice, *Am. J. Surg.* 42: 350-355 (Nov.) 1938.

32. Vedder, E. B.: Scurvy, in Tice, Frederick: *Practice of Medicine*, Hagerstown, Md., W. F. Prior Company, Inc., 1921, vol. 9, chap. 9, p. 162.

33. Mindlin, R. L., and Butler, A. M.: Determination of Ascorbic Acid in Plasma: Macromethod and Micromethod, *J. Biol. Chem.* 122: 673-686 (Feb.) 1938.

34. Pregl, Fritz: *Quantitative Organic Microanalysis*, ed. 3, translated by E. Beryl Daw, Philadelphia, P. Blakiston's Son & Co., 1937.

presenting malignant growths of the gastrointestinal tract, as well as those presenting gastric or duodenal ulcers, show almost universally low values.

Table 2 shows that, as far as this series is concerned, disruption occurs more frequently following vertical incisions.

TABLE 5.—Five Clean Cases in Which Postoperative Complications Occurred

Disease	General Condition	Post-operative Course	Plasma Ascorbic Acid, Mg. per 100 Cc.	Serum Protein, Gm. per 100 Cc.	Albumin-Globulin Ratio	Results
Duodenal ulcer with obstruction	Good	Distention, vomiting, 3 transfusions	0.42	6.30	1.4	Evisceration, died
Suspected carcinoma of stomach unconfirmed	Fair	Persistent cough	0.35	5.60	1.4	Evisceration, died
Cholecystitis and cholelithiasis	Good	Vomiting, cough, ileus	0.30	5.80	...	Evisceration
Acute appendicitis	Good	Distention, cough	0.30	5.55	1.2	Evisceration
Gunshot wound of abdomen	Good	Distention, atelectasis, pneumonia, sulfanilamide, sulfapyridine	0.31	5.90	1.3	Evisceration

It may be argued that this is to be expected, as the vertical incision is the more commonly used. However, it will be seen that the only cases in which evisceration occurred following disruption were those in which the vertical incision was used. As might be expected in the presence of infection and the formation of adhesions, evisceration is less frequent. As a matter of fact, the only case of a clean vertical incision in which evisceration did not occur was one in which the peritoneum was not opened. No evisceration has yet occurred through the disrupted wound in a transverse incision. We have used this incision many times in the past three years, and especially is it to be recommended in the upper part of the abdomen, for here most vertical incisions not only impair the nerve and blood supply but also sever the tendinous fibers of the transversus abdominis muscle, which fuses with the peritoneum in the midline.³⁵ This makes for a weak closure of the deep layer. If these fibers are split transversely they are easily approximated in a firm closure.

Table 3 illustrates that, as far as this small series is concerned, the type of suture material seems to make but little difference with reference to wound disruption.

That no type of suture material is proof against disruption is in agreement with observations made in our review; this was also emphasized by Madelung³⁶ in his classic work in 1905. We came to the conclusion that tension sutures were of questionable value but that they might tend to prevent evisceration should disruption occur. These data likewise indicate that tension sutures are not positive protection against wound disruption or evisceration, since tension sutures were employed in seven of the thirteen cases in which evisceration occurred.

Tables 4, 5 and 6 deal with the plasma vitamin C and serum protein levels in the 20 cases of wound disruption. It will be noted that the serum protein was

below normal in every instance in which wound disruption occurred and that, with a single exception, this was likewise true of the plasma ascorbic acid.

Table 4 comprises a group of 9 cases in which the wound appeared perfectly clean and in which the convalescence prior to disruption had been absolutely uneventful. In each instance the disruption occurred without warning; the patient had had a normal postoperative course and had been afebrile for three or more days, and there had been no vomiting or distention. In all except 1, the disruption was without apparent physical cause, and the plasma vitamin C and serum protein values of the blood plasma were low. This case, which was one of carcinoma of the pancreas with obstructive jaundice, deserves special comment:

A man aged 73 appeared to be in very poor condition. Preoperatively the plasma vitamin C value of the blood was 0.37 mg. and the serum protein value 5.36 Gm. per hundred cubic centimeters. In the course of a series of saturation studies we have found that from 1,000 to 2,000 mg. of ascorbic acid over a period of from three to four days was sufficient to elevate the blood ascorbic acid to normal levels. Consequently, we gave the patient vitamin C in amounts which were found to produce saturation in the average of the cases studied. A transfusion was also given. In addition, dried bile and vitamin K were administered until the prothrombin time was within normal limits. A subcostal incision was made and an enormously distended gallbladder was found and a cholecystoduodenostomy was performed. The convalescence was surprisingly smooth and uneventful. On the fifth day the wound separated down to the deep layer. The transversus abdominis fascia and peritoneum were well healed and did not separate. The patient was taken to the operating room, where a careful inspection of the wound revealed a large, partially organized hematoma, approximately 5 by 5 by 3 cm., which had actually forced the anterior fascia and skin apart. The wound was clean and there was good evidence of healing. A secondary closure was

TABLE 6.—Six Infected Cases with Postoperative Complications

Disease	General Condition	Post-operative Course	Plasma Ascorbic Acid, Mg. per 100 Cc.	Serum Protein, Gm. per 100 Cc.	Albumin-Globulin Ratio	Results
Gunshot wound of abdomen	Good	Stormy; transfusion	0.24	6.10	...	Evisceration
Myometrial and chronic salpingitis	Good	Moderate distention	0.23	6.20	1.3	No evisceration
Intestinal obstruction and adhesions	Fair*	Cough	0.42	6.20	1.1	No evisceration
Acute appendicitis with perforation and peritonitis	Fair	Cough; septic temperature; distention	0.53	5.60	1.3	No evisceration
Acute appendicitis with perforation, pyelophlebitis and liver abscess	Poor	Cough; distentions; transfusion	0.35	5.40	...	No evisceration; died
Ruptured peptic ulcer	Good	Mild wound infection	0.35	5.55	1.2	Evisceration

* Wound disrupted following a previous operation many years before.

performed, followed by an uneventful recovery. It will be noted that, although the serum protein was low, the vitamin C concentration was practically normal. We consider that separation of this wound was due primarily to the formation and pressure of the hematoma. It is quite likely that in this case the wound would have separated even though the serum protein had been normal.

Table 5 groups five clean cases in which postoperative complications, in addition to the complication found in the wound, occurred. In each of these cases there was the complicating factor of an increase

35. Batson, Oscar B.: *Anatomy of Gallbladder Incisions, Surgery* 3: 871-874 (June) 1938.

36. Madelung, Otto: *Ueber der postoperativen Vorsal von Baucheingeweiden*, Arch. f. klin. Chir. 77: 347-401, 1905.

in intra-abdominal tension. One patient received three transfusions, and it will be noted that this patient had the highest serum protein value in the series. The last patient in this series, a 12 year old boy with two gunshot perforations of the stomach, developed type XVIII pneumonia. He was treated with sulfanilamide and sulfapyridine. According to the investigations of Bricker and Graham,³⁷ wound healing

TABLE 7.—Summary of Analyses in Twenty Cases of Wound Disruption: Average Values for Plasma Ascorbic Acid and Serum Protein Concentrations

Group	Plasma Ascorbic		Serum Protein		Albumin-Globulin Ratio
	Number of Patients	Acid, Mg. per 100 Cc.	Range, Mg. per 100 Cc.	Protein, Gm. per 100 Cc.	Range, Gm. per 100 Cc.
Normal values reported in the literature	..	....	0.7 to 2.0	7.11	6.5 to 7.7
Normal values in our series (students)	20	0.96	0.64 to 1.86	7.19	6.51 to 7.46
Our group of hospitalized patients with benign conditions	30	0.87	0.49 to 1.61	6.93	5.90 to 7.75
Wound disruption (infected wounds)	6	0.33	0.28 to 0.59	5.84	5.40 to 6.20
Wound disruption (clean wounds)	14	0.36	0.13 to 0.66	5.83	5.44 to 6.30
		Standard Deviation	Test of Significance	Standard Deviation	Test of Significance
Infected wounds		0.0538	10.1	0.166	8.2
Clean wounds		0.062	9.9	0.174	7.6

is adversely affected by the administration of sulfanilamide. In this case the use of both sulfanilamide and sulfapyridine quite probably was a factor in creating the wound disruption. In each of these cases the wound appeared clean, with no evidence of healing, and in each the serum protein and vitamin C concentrations of the blood plasma were low.

Table 6 comprises 6 cases in which there was a definite wound infection. In all except the last case, there were moderate to severe stormy postoperative courses. In the last case, in which there was ruptured peptic ulcer, operation was done through a high right rectus incision. We would note here in passing that at the City of Detroit Receiving Hospital 234 operations on ruptured peptic ulcers were done through this type of vertical incision with an incidence of wound disruption and evisceration of 2.6 per cent,³⁸ this with a recorded hospital incidence of 0.5 per cent, which is very high (we feel that both these figures are too low, as during this period many partial disruptions without evisceration undoubtedly went unrecognized). During 1938 we operated on 39 of these patients through a short transverse incision similar to that described by Amendola³⁹ without a single evisceration. We not infrequently see these wounds become severely infected and break down, but owing to the location and type of this incision we do not expect serious wound separation in these cases. In checking 40 gastric and duodenal ulcer cases, in half of which on entrance to the hospital perforation existed, we found that almost universally low serum protein

and plasma vitamin C values were present. The incidence of wound disruption might be expected to be high because of nutritional deficiencies.

Table 7 summarizes the 20 cases of wound disruption in this series. The normal values as collected from the literature,⁴⁰ as well as our own series, for plasma ascorbic acid are from 0.7 to 2.0 mg. of ascorbic acid per hundred cubic centimeters of blood plasma. The normal total serum protein values reported in the literature vary from 6.5 to 7.7 Gm. per hundred cubic centimeters, 7.1 being the average. Our data from normal subjects were obtained from college students and laboratory workers. It will be seen that these averages are well within the limits reported in the literature as normal. Our data, obtained from a group of 30 hospitalized patients with benign lesions (hernias, appendicitis, cholecystitis, fractures and the like), were also within normal limits but tended to be slightly lower. It will be seen that the average values of the plasma ascorbic acid and serum protein concentrations in the wound disruption cases are decidedly lower than normal.

COMMENT

There are undoubtedly many patients operated on when in a subcurvy state who have normal wound healing, but the relationship of low vitamin C and low serum protein to poor wound healing of those who have difficulty in wound healing cannot be overlooked.

In a series of 1,458 collected cases of wound disruption 320, or 22 per cent, presented carcinomas, while 195, or 13.4 per cent, presented gastric or duodenal ulcers. In such cases the nutritional condition of the patient, as reflected by serum protein and vitamin levels, is very likely to be poor because of restricted diets and, in the case of serum protein concentrations, because of decreased production of the proteolytic enzymes.

During the past year, in the course of some 200 determinations, we found that persons suffering from carcinoma of the gastrointestinal tract or gastric or duodenal ulcers almost universally show low vitamin C and serum protein values. It has been noted recently that some patients will show a drop in their vitamin C levels following certain operative procedures. We have found this to be true. We know also that in the presence of infection the body requires a greater intake of vitamin C in order to maintain a normal degree of saturation.

CONCLUSION

We would emphasize Mason's⁴¹ statement that "the urge to heal is almost as great as the urge to live." Wound healing is affected by many factors, and the nutritional condition of a patient is a most important one. Either to maintain life or to repair tissue there must be a supply of proteins, fats, carbohydrates, minerals, water and vitamins. Periods of inanition or faulty nutrition are likely to deplete the carbohydrates and fat stores and to lower serum protein and vitamin levels. We almost universally supply carbohydrate and salts by routine intravenous administrations, but, generally speaking, if a transfusion is given it is because the hemoglobin and the red blood cell count are low

37. Bricker, E. M., and Graham, E. A.: The Inhibitory Effect of Sulfanilamide on Wound Healing, *J. A. M. A.* **112**: 2593-2594 (June 24) 1939.

38. Hartzell, J. B., and Soreck, M. L.: Acute Perforated Peptic Ulcer: Simple Closure Through a Short Transverse Incision, *Surg., Gynec. & Obst.* **69**:669-670 (Nov.) 1939.

39. Amendola, F. H.: Simplified Approach for Suture of Acute Perforation of Peptic Ulcer, *Surg., Gynec. & Obst.* **64**: 76-77 (Jan.) 1937.

40. Farmer, C. J., and Abt, A. F.: Ascorbic Acid Content of Blood, *Proc. Soc. Exper. Biol. & Med.* **32**: 1625-1629 (June) 1935. Magnuson, A. E., and Osterberg, A. E.: Determination of Cevitamic Acid in Blood and Urine, *Proc. Staff. Meet., Mayo Clin.* **13**: 700-702 (Nov. 2) 1934. Mindlin and Butler.²³

41. Mason, M. L.: Wound Healing, *Internat. Abstr. Surg.* **60**: 363-315, 1939; in *Surg., Gynec. & Obst.*, October 1939.

rather than because of a low serum protein, and the vitamins are forgotten entirely. It would seem logical that, if normal healing is to be expected, the ascorbic acid and serum protein levels of the blood plasma ought to be brought to and kept at normal concentration.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LUND AND CRANDON AND
DRS. HARTZELL, WINFIELD AND IRVIN

DR. THOMAS T. MACKIE, New York: These two papers are important contributions not so much because of correlation between deficiency of a particular vitamin or low plasma protein levels and certain surgical complications as because of the broader implications of nutrition in wound healing and surgical convalescence. I likewise have found that a drop of the plasma vitamin C is common in the postoperative period. There is ample experimental evidence to support the role scurvy plays in failure of wound healing. Wolbach has shown that in this condition there is defective formation of collagen. In scorbutic guinea pigs there is obvious reduction of the tensile strength of wounds when contrasted with the normal animal, beginning about the fifth postoperative day. Although single determinations do not permit the conclusion that the patient is on the verge of scurvy or that failure of healing will occur, they indicate that a greater hazard may well exist. These papers permit two conclusions. Demonstration of low plasma ascorbic acid values or low plasma protein levels indicates an abnormal state of nutrition. Evidence of one or more such deficiency must be accepted as indicating the probable presence of others. Both experimental and clinical studies indicate that these multiple deficiencies may contribute to several important postoperative complications, including wound disruption, hemorrhage, gastric atony, persistent vomiting, distention and paralytic ileus. Such observations have led me to believe that the preoperative management of elective surgical cases should include utilization of those clinical and laboratory methods which are available at present to evaluate the nutritional states of the patient. Evidence of one deficiency must be accepted as indicative of others, and appropriate measures should be undertaken. In any consideration of the role of the vitamins it is important to remember that their primary function lies in their role as the chemically active portion of many coenzymes which are essential for the normal metabolism, and consequently the normal function, of all living cells.

DR. JONATHAN RHOADS, Philadelphia: Drs. Hartzell, Winfield and Irvin have done remarkable work in collecting twenty cases of this relatively infrequent complication and in obtaining specimens from the patients at the time of the accident. The experiments on wound healing carried out in dogs by Dr. Ravdin and his associates showed that severe depletion of the plasma proteins rendered these animals incapable of normal fibroplasia. Wound disruption was frequent in their dogs, and sections of the wound as late as fourteen days after operation showed but few fibroblasts. Dogs similarly prepared prior to operation but which received lyophilic plasma immediately after operation healed in a normal manner. Vitamin C deficiency interferes with wound healing by a different mechanism, but its relation to wound healing is equally susceptible of proof in the experimental animal. However, while these investigations strongly indicate that these two deficiency states may prevent normal wound healing, to show that they really are of practical importance in patients required just such a study as Dr. Hartzell and his associates have presented. As they have rightly pointed out, there are undoubtedly many possible causes of wound dehiscence and it is indeed surprising that all these twenty patients should show hypoproteinemia and that nineteen of them should show a C avitaminosis. It is important to realize that hypoproteinemia connotes not only a reduced concentration of protein in the circulating plasma but also a depletion of the labile protein stores of the body and a reduction in the total plasma volume. Thus, in some of the hypoproteinemic dogs in Whipple's laboratory it was found that the plasma volume was

reduced about 50 per cent. This probably results in some alterations of the peripheral circulation. Whether the delay in fibroplasia which Ravdin and his collaborators have observed in the hypoproteinemic dog is due to the alteration in the colloid osmotic pressure of the blood, to the effect on the circulation of the associated decrease in blood volume or to the lack of labile protein for repair purposes is not known but is the subject of continued investigation.

DR. MARSHALL K. BARTLETT, Boston: It is clear after listening to the paper of Drs. Hartzell, Winfield and Irvin that wound healing as seen in the clinical patient is a complicated problem with many factors, and it probably will take a long time to sort these out and assign the proper importance to each. Considering vitamin C as one of these factors, I think that Drs. Lund and Crandon are to be congratulated on the prolonged experiment they carried out in producing clinical scurvy. The striking thing about it is the length of time it took to produce clinical scurvy in this young man. One factor in that, of course, may be that he was in most excellent health and probably saturated with vitamin C and all the other necessary factors at the start. In relation to that, I hope you all noticed how long that man's plasma vitamin C level was zero before any evidence of interference with wound healing could be shown. It may well be that the determination of vitamin C level in the white cells may prove to be of far more importance in predicting the presence of impending scurvy than a simple determination of the plasma vitamin C.

DR. CHARLES C. LUND, Boston: We have shown that vitamin C deficiency can produce absolute failure of healing, but I think this is rather uncommon in clinical cases. The evidence we have already points in this direction. The splendid work of Whipple and his associates must never be forgotten. A few years ago, just before vitamins were considered and before plasma protein was considered, they reduced the wound disruptions at their hospital 80 per cent merely by improving their surgical technic. We must never forget that we are surgeons by trying to get away with poor technic by feeding vitamins. It can't be done. The same thing applies to the plasma protein. I haven't studied it, but I think it is perfectly possible that reduced plasma protein is more important in relation to the chemistry of healing than is vitamin C. In going over the cases that I have not had time to talk about in detail today, most of them are failures of surgical technic rather than the result of any chemical deficiencies, and, of the ones that are chemical, even they have in some cases some questionable factor of technic. Dr. Mackie mentioned that the vitamins are of fundamental importance in the nutrition. Crandon got very weak at the end of this experiment. He took a test on a treadmill at the Harvard Business School fatigue laboratory, and on the treadmill he lasted just sixteen seconds. Dr. Dill tells me that the weakest Harvard student he ever tested went a minute. At the termination of this experiment he stayed on his diet for ten days while he was given vitamin C alone. On the tenth day his muscular strength had come back to the point that put him in the class with the weakest Harvard student, and without any gain of weight and without any change in diet, so that there couldn't have been any other factor than vitamin C. Subsequent to this when he went off the diet he gained a pound a day for the next two weeks and we have still further work to do along the line of further tests as he develops his muscular strength back. Therefore this vitamin must have some function of importance that goes beyond wound healing. However, we do not know that it has anything to do with surgery now unless muscular weakness is a factor in surgical results, as it well may be.

DR. JOHN B. HARTZELL, Detroit: Dr. Singleton is an advocate of the transverse type of incision. Because of the limits of time we omitted the data which relate to the type of incision with reference to the incidence of evisceration. While it may be argued that it is to be expected that the vertical incision eviscerates more commonly because it is more commonly used, our data indicate that evisceration does not occur in the type of incision advocated by Dr. Singleton. Likewise, we omitted in our discussion the relationship of infection, but this will be found in the published paper, as well as the fact that no type of suture material is proof against disruption.

THE SYNTHETIC ESTROGEN
STILBESTROL

AN EXPERIMENTAL AND CLINICAL EVALUATION

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The natural estrogens have proved their value in the treatment of the severe menopausal syndrome, vaginitis of children and senile women, and certain types of amenorrhea, migraine and abnormal breast hyperplasia. Two principal drawbacks attend the clinical use of the natural estrogens—the high cost, especially when large doses are required, and the loss of potency when administered orally. The advantage of the oral administration of endocrine products in the attempt to overcome a relative or actual deficiency is apparent when one recalls that the various hormones are normally produced in minute quantities at a relatively steady rate. This process cannot be imitated by hypodermic injections at intervals of two or three days.

For these and other less important reasons, the need of an orally potent, synthetic estrogen is constantly engaging the attention of the biochemist and the clinician. When Dodds and his associates¹ announced in 1938 the synthesis of the highly active estrogen stilbestrol, the product was welcomed for clinical trial with guarded hopefulness throughout the world.

Stilbestrol is a stilbene derivative, unrelated to the sterols and totally foreign to the human economy. The acetate and propionate of stilbestrol have equal estrogenic properties and possess the additional advantage of slower absorption when given parenterally.² In the investigation of stilbestrol herein reported, we set out to determine:

1. The comparative potency of the product in the animal in terms of the international unit of estrone.
2. Its rate of absorption and excretion in the human being.
3. Its therapeutic effectiveness as gaged by its ability to produce growth of the endometrium and withdrawal bleeding in castrated, menopausal and amenorrheic women; and by its relative effectiveness in relieving the various conditions wherein the natural estrogens are successfully employed.
4. The incidence of toxic symptoms in the human being.
5. The possibility of tissue damage in the human being.
6. Its damaging effects on the vital organs of animals.

THE BIOLOGIC POTENCY OF STILBESTROL IN
TERMS OF THE INTERNATIONAL
UNIT OF ESTRONE

An international unit of estrone is 0.1 microgram of the substance. Ten international units (1 microgram) of estrone equals 1 Allen-Doisy rat unit. The relative potency of other estrogens may be ascertained in terms of the international unit by assay against a known number of units of estrone.

Repeated assays in our laboratory uniformly showed that 0.2 microgram of stilbestrol, given hypodermically in three divided doses, evokes vaginal estrus in the

adult castrated rat—the Allen-Doisy rat unit. Its biologic potency when given hypodermically is therefore five times greater than that of estrone and equal to that of estradiol benzoate. Of greater interest is the fact that the introduction of 1 microgram (5 rat units) of stilbestrol into the stomach of the castrated rat produces full estrus. It requires either 20 micrograms (20 rat units) of estrone or 2 micrograms (20 rat units) of estradiol, given in like manner, to produce the same effect.

It will be seen later that the ratio between the oral and the hypodermic doses of stilbestrol is 5 to 1 in the human being as well as in the rat, in contrast to a ratio of 20 to 1 in terms of the rat unit for the natural estrogens.³

THE RATE OF ABSORPTION AND EXCRETION
OF STILBESTROL

The optimal dosage of a given estrogenic substance must ultimately be determined by trial and error. Except in instances of vaginitis in children and senile women, dependence on the character of the vaginal smear is clinically unsound. Shorr, Robinson and Papanicolaou,⁴ who have studied the subject extensively, state that "there is no necessary correlation between the degree of symptomatic improvement and the

TABLE 1.—The Rate of Excretion of Active Estrogen in
Castrated Women After a Single Hypodermic
Dose of Stilbestrol

Quantity of Stilbestrol Administered Hypodermically as a Single Dose	Number of Rat Units of Active Estrogen in the Daily Output of Urine Days After the Administration of a Single Hypodermic Dose of Stilbestrol				
	One	Two	Three	Four	Five
1.0 mg.....	250.0	100.0	6.6	....	....
1.0 mg.....	....	....	34.0	3.3	....
2.0 mg.....	100.0	50.0	9.0	....	....
2.0 mg.....	66.6	26.6	....	10.0	3.3
2.0 mg.....	....	500.0	27.0	20.0	....
2.0 mg.....	100.0	75.0	50.0	25.0	10.0
2.0 mg.....	900.0	400.0	66.6	13.2	3.3
2.0 mg.....	....	66.6	40.0	3.3	10.0

extent of the smear change. The level of the smear change at which amelioration of symptoms takes place varies with the individual patient."

Studies on the rate of absorption and excretion of estrogens likewise give little information concerning optimal dosage. Such data do, however, determine the maximum intervals at which hypodermic treatment must be given. If, for instance, the quantity injected were totally eliminated in twenty-four hours, injections at intervals of three or four days would leave the patient without the benefit of the estrogen during most days of treatment. As seen in table 1, quantities of estrogenic substance far greater than those current during the premenstruum of normal women are present in the urine of castrated women on the third day after a single injection of 1 or 2 mg. of stilbestrol. Since the amount excreted in the urine reflects fairly accurately the relative content of estrogen in the blood, it is fair to assume that injections of adequate quantities twice weekly are sufficient for clinical purposes.⁵

That stilbestrol is readily absorbed from the gastrointestinal tract is evident from the fact that as little as

From the Department of Gynecology, Mount Sinai Hospital.
Read before the Section on Pharmacology and Therapeutics at the Ninety-First Annual Session of the American Medical Association, New York, June 12, 1940.
1. Dodds, E. C.; Goldberg, L.; Lawson, W., and Robinson, R.: Estrogenic Activity of Certain Synthetic Compounds, *Nature*, London **141**: 247 (Feb. 5) 1938.
2. Caffier, P., and Ozkayaalp, E. S.: Zur Frage der Ausscheidung der Stilben-Präparate, *Zentralbl. f. Gynäk.* **63**: 1218 (June 3) 1939.
3. Papanicolaou, G. N., and Shorr, Ephraim: Action of Ovarian Follicular Hormone in Menopause, as Indicated by Vaginal Smears, *Am. J. Obst. & Gynec.* **31**: 806 (May) 1936. Shorr and Papanicolaou.
4. Shorr, Ephraim; Robinson, F. H., and Papanicolaou, G. N.: A Clinical Study of the Synthetic Estrogen Stilbestrol, *J. A. M. A.* **113**: 2312 (Dec. 23) 1939.
5. Mazer, Charles, and Israel, S. L.: Studies on the Optimal Doses of Estrogens, *J. A. M. A.* **108**: 163 (Jan. 16) 1937.

0.2 mg. given daily to the castrated woman maintains a level of estrogen excretion comparable to that current in the normal woman during the week prior to menstruation (table 2).

THE THERAPEUTIC EFFECTIVENESS OF STILBESTROL
It is obviously impossible to review, in this short presentation, the extensive clinical reports on the use of stilbestrol in the various conditions in which the natural estrogens are commonly employed. We are

TABLE 2.—The Rate of Excretion of Active Estrogen in Castrated Women with the Administration of Daily Oral Doses of Stilbestrol

Daily Oral Dose of Stilbestrol	Number of Rat Units of Active Estrogen in the Daily Output of Urine Days of Administration of Stilbestrol					
	One	Two	Three	Four	Five	Six
0.1 mg.....	....	....	13.3	13.3	....	....
0.1 mg.....	6.6	6.6	6.6	....	....	3.3
0.1 mg.....	3.3	3.3	3.3	3.3	20.0	6.6
0.2 mg.....	13.3	3.3	16.0	20.0	16.0	6.6
0.2 mg.....	40.0	26.6	6.6	6.6	....	....
0.2 mg.....	21.0	23.3	17.3	13.3	13.3	21.0
0.5 mg.....	20.0	20.0	100.0	133.0	100.0	100.0

limited by necessity to an evaluation of the results obtained in the 189 cases embraced in this report (table 3). These results, summarized in the following paragraphs, confirm, in the main, the observations of others that stilbestrol produces all the clinical effects of the natural estrogens in those who tolerate the substance.

EFFECT ON THE MENOPAUSAL SYNDROME

One hundred and fifty patients presenting severe menopausal symptoms, such as frequent flushes, headache, depression, insomnia and impairment of memory, were given from 0.2 to 5 mg. of stilbestrol daily by the oral route or every fourth day parenterally. Thus the total oral dose was four times the hypodermic dose, since it was taken daily and not every fourth day.

TABLE 3.—Clinical Classification of 189 Patients Treated with Stilbestrol

Indication	No. of Patients
Menopausal syndrome.....	150
Amenorrhea.....	19
Suppression of lactation.....	8
Juvenile vulvovaginitis.....	4
Migraine.....	4
Diabetes mellitus complicating the menopause.....	4
Total.....	189
Method of Administration of Stilbestrol	
Route	No. of Patients
Oral.....	103
Hypodermic.....	70
Alternating—oral or hypodermic.....	16

Twenty-eight of the group (18.7 per cent) showed symptoms of intolerance to the substance at an early stage of the treatment, irrespective of the mode of administration. The remaining 122 patients received treatment for periods of from eight to forty weeks. The wide variation in length of treatment is partly accounted for by the appearance of intolerable side-effects in eight patients after two or more months of treatment.

Eighty-three of the 122 patients (68 per cent) were totally relieved and 34 (27.9 per cent) were only partly relieved of their symptoms during the period of observation of several months. The symptoms of the remaining

5 patients (4.1 per cent) were not influenced by the treatment (table 4). The results in the 122 patients who tolerated the substance for at least two months were essentially in accord with the majority of published observations on the use of stilbestrol for the relief of the menopausal syndrome and are, moreover, significant because they were achieved by means of oral administration alone in 58 (49 per cent) of the patients treated.

The effectiveness of stilbestrol given orally is in striking contrast to the inactivity of the natural estrogens, which lose 95 per cent of their potency when thus administered.⁶ The clinical use of stilbestrol would, indeed, be highly advantageous were it not accompanied by side-effects in a considerable number of instances.

Sporadic uterine bleeding either during or after treatment occurred in 15 of the 79 postmenopausal women (19 per cent) in the group of 150 climacteric patients—an incidence of estrogen-induced bleeding comparable to that observed in postmenopausal patients treated with equivalent hypodermic doses of the natural estrogens. The severity of the uterine bleeding in some of the treated patients necessitated temporary withdrawal of treatment, uterine curettage or the simultaneous administration of testosterone propionate. In the 6 who were curetted while bleeding, a hyperplastic endometrium was obtained. The induction of uterine bleed-

TABLE 4.—Results of Adequate Stilbestrol Treatment of the Menopausal Syndrome in the 122 Women Who Tolerated the Substance

Effect on Symptoms	Route of Administration of Stilbestrol			Total No. of Patients	Percent age
	Hypo-dermic	Oral	Alter-nating		
Marked relief.....	28	47	8	83	68
Moderate relief.....	25	7	2	34	27.9
No relief.....	1	4	0	5	4.1

ing from an overgrown endometrium by the oral administration of the substance to women who had not menstruated for years is further evidence of its high degree of potency when given by this route. The oral administration of the commercially available natural estrogens rarely evokes uterine bleeding in either menopausal or amenorrheic women.

EFFECT ON AMENORRHEA

In amenorrheic women, the natural estrogens have been employed in the hope of increasing the size and vascularity of the uterus, thereby rendering it more responsive to an improved pituitary-ovarian activity brought about by other agents. To these patients, the estrogen must be administered intermittently (only two weeks of the month) in order to avoid inhibition of the anterior hypophysis, which would defeat the very purpose of the treatment. In order to induce bleeding from a well developed endometrium, a total of 50,000 rat units of estrogen (the equivalent of a half million international units of estrone) must be given hypodermically in five divided doses.⁷ Uterine bleeding, grossly indistinguishable from normal menstruation from a highly proliferative endometrium, almost invari-

6. Shorr, Ephraim, and Papanicolaou, G. N.: Action of Gonadotropic Hormones in Amenorrhea as Evaluated by Vaginal Smears, *Proc. Soc. Exper. Biol. & Med.* 41: 629 (June) 1939.
7. Kaufmann, C.: Echte Menstruation bei einer kastrierten Frau durch Zufuhr von Ovarialhormonen, *Zentralbl. f. Gynäk.* 57: 42 (Jan. 7) 1933. *Claudberg, C.: Nachweis der Wirkung künstlich zugeführten Lutealhormons am menschlichen Uterus, Zentralbl. f. Gynäk.* 57: 1461 (June 24) 1933.

ably follows within a week or ten days the withdrawal of such intermittent treatment.

Stilbestrol was thus employed for 19 amenorrheic women. The treatment of 4 was stopped after the first or second day because of nausea, vomiting or epigastric pain. The hypodermic administration of at least 10 mg. of stilbestrol (equivalent to 50,000 rat units or a half million international units of estrone), given in five divided doses over a period of two weeks, produced menstruation-like bleeding in six of seven attempts. Smaller doses similarly administered failed to evoke more than mere staining. The oral administration of 5 mg. daily over a period of ten days (a total dose of 50 mg.) was successful in all of seventeen attempts. Smaller total doses, such as 20 to 30 mg., similarly administered failed to induce withdrawal bleeding in seven of nine attempts (table 5).

It is interesting to note that the ratio between the oral and the hypodermic doses of stilbestrol in the induction of withdrawal bleeding in amenorrheic women is five to one as it is in the induction of artificial estrus in the castrated rat. Moreover, the minimum effective, total hypodermic dose of stilbestrol in terms of the international unit of estrone is identical as far as withdrawal bleeding is concerned with that of the natural estrogens.

TABLE 5.—*Stilbestrol-Induced Withdrawal Bleeding in Fifteen Amenorrheic Women*

Route and Interval of Administration	Quantity of Stilbestrol		Total Number of Attempts to Induce Bleeding*	Results	
	Individual Dose	Total Dosage		Success	Failure
Hypodermic, every third day	5 mg.	25 mg.	4	3	1
	2 mg.	10 mg.	3	3	0
	1 mg.	5 mg.	1	0	1
Oral, every day	5 mg.	50 mg.	17	17	0
	3 mg.	30 mg.	8	2	6
	2 mg.	20 mg.	1	0	1

* Several attempts were made in some of the 15 patients.

EFFECT ON LACTATION

Eight puerperal women who for various reasons could not nurse their infants were given daily from 3 to 10 mg. of stilbestrol orally for a period of from two to four days with complete suppression of lactation—an effect comparable to that obtained with large doses of the natural estrogens given hypodermically.⁸ None of these 8 patients exhibited any side effects, such as nausea, vomiting or abdominal pain, despite the large doses administered. The unusual tolerance of pregnant and puerperal women to large doses of stilbestrol was noted by Priscilla White,⁹ Greenhill¹⁰ and others.

EFFECT ON MIGRAINE

Four patients with frequent and severe attacks of migraine received stilbestrol. Two of them, given the substance orally in daily doses of 1 and 2 mg. for three and two months respectively, tolerated it well and were relieved of the migraine during the period of treatment. The remaining 2 patients received 2 mg. of the substance hypodermically every third day for a period of one month without untoward reactions, but the migraine was not influenced by the treatment.

Similar results in migraine are obtainable with comparable doses (5,000 to 10,000 rat units) of the natural estrogens given hypodermically at intervals of four days.⁵

EFFECT ON JUVENILE VULVOVAGINITIS

Four children with vulvovaginitis were treated with stilbestrol. Two of the 4 received 1 mg. daily by mouth for a period of one month without side-effects. The vaginal epithelium became intensely cornified within

TABLE 6.—*The Relation Between the Size of the Dose of Stilbestrol and the Incidence of Toxic Symptoms*

Route and Interval of Administration	Dose of Stilbestrol	Total No. of Patients*	Patients with Toxic Symptoms	
			Number	Percentage
Oral, daily.....	0.2 to 0.5 mg.	31	1	3.2
	1 mg.	51	9	17.7
	2 mg.	28	6	21.3
	3 mg.	16	6	37.4
	5 mg.	32	10	31.2
Hypodermic, every fourth day	0.2 to 0.5 mg.	43	1	2.3
	1 mg.	38	5	13.2
	2 mg.	21	11	52.4
	5 mg. or more	7	3	42.8

* Several patients are herein listed more than once because they reacted differently to variation in dosage.

two weeks, and the vaginal smears thereafter remained free from pus and pathogenic bacteria during follow-up periods of three and eight months respectively. The hypodermic administration of 1 mg. of the substance every third day for a period of six weeks produced a similar result in the other 2 children. Owing to the paucity of clinical material, the minimum effective dose of stilbestrol in this condition was not ascertained.

THE INFLUENCE OF STILBESTROL ON THE INSULIN REQUIREMENT OF DIABETIC PATIENTS

The ability of large doses of the natural estrogens to lower the blood sugar level of diabetic patients was reported by us¹¹ in 1935 and, more recently, by Spiegelman.¹² These clinical observations are in accord with the experimental findings of Barnes and his associates¹³ that the blood sugar level of pancreatectomized dogs injected daily with 200 rat units of estrogen is appreciably decreased.

TABLE 7.—*The Time of Appearance of Toxic Symptoms in Relation to the Mode of Administration of Stilbestrol*

Time of Appearance of Toxic Symptoms	Route of Administration		Patients with Toxic Symptoms	
	Oral	Hypodermic	No. of Patients	Percentage
Early.....	27	5	32	76.2
Delayed.....	2	8	10	23.8

Theoretically, the fall in the blood sugar in the diabetic, both human and animal, following injections of the natural estrogens is attributable to inhibition of the diabetogenic function of the anterior lobe of the pituitary, since hypophysectomy in the pancreatectomized dog also reduces the blood sugar.

8. Mazer, J. M.: Die hemmende Wirkung des Follikelhormons auf die Milchsekretion der Wöchnerin, *Zentralbl. f. Gynäk.* 60:2379 (Oct. 3) 1936.

9. White, Priscilla: Personal communication to the authors.

10. Greenhill, J. P.: Editorial Comment, in De Lee, J. B., and Greenhill, J. P.: 1939 Year Book of Obstetrics and Gynecology, Chicago, Year Book Publishers, Inc., 1940.

11. Mazer, Charles; Meranze, D. R., and Israel, S. Leon: Evaluation of the Constitutional Effects of Large Doses of Estrogenic Principles, *J. A. M. A.* 105:257 (July 27) 1935.

12. Spiegelman, A. R.: Influence of Estrogen on Insulin Requirement of the Diabetic, *Proc. Soc. Exper. Biol. & Med.* 43:307 (Feb.) 1940.

13. Barnes, B. O.; Repan, J. F., and Nelson, W. O.: Improvement in Experimental Diabetes Following the Administration of Atromidin, *J. A. M. A.* 101:926 (Sept. 16) 1933.

In view of these clinical and experimental observations on the effect of the natural estrogens on the blood sugar of the diabetic, it was interesting to determine whether stilbestrol also reduces the insulin requirement of diabetic patients. The following case histories summarize the observations made during the treatment of four frankly diabetic, climacteric women with the substance:

CASE 1.—B. S., aged 54, who had diabetes and hypertension for many years, failed to stabilize on a restricted diet and 10 units of insulin daily for two months. The oral administration of 5 mg. of stilbestrol daily for a period of six weeks eliminated the need of insulin and reduced the average blood sugar level from 180 to 123 mg. However, the marked glycosuria persisted. The hypodermic administration of 1 mg. of

in weight. Because of her limited diet, the fasting blood sugar was only 140 mg. and the urine was free from sugar. Physical examination revealed nothing abnormal other than underweight. The patient was put on an unrestricted diet and was given 5,000 rat units of estradiol benzoate (equivalent to 50,000 international units of estrone) hypodermically twice weekly until April 1, 1939. She gained 12 pounds (5.4 Kg.) and was relieved of all symptoms. Her blood sugar on repeated examinations showed a normal level, and the urine was free from reducing substance and ketone bodies.

A complete laboratory study (case 29, table 8) on April 1, 1939 preliminary to the administration of stilbestrol showed no abnormalities aside from a slight hypercholesterolemia. From April 2, 1939 to March 26, 1940 she received 1 mg. of stilbestrol hypodermically twice weekly, equivalent in terms of the international unit of estrone to the dose of estradiol

TABLE 8.—Complete Laboratory Studies of Ten Women Before and After Intensive Treatment with Stilbestrol

Patient	Length of Treatment	Total Dose, Mg.		Basal Metabolic Rate		Hippuric Acid, Excretion, Gm.		Icterus Index		Hemoglobin, %		Red Blood Cells, Millions		White Blood Cells, Thousands		Lymphocytes, %	
		Hypo-dermic	Oral	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
C5	3 months	..	524	+20	+26	3.3	3.49	8.6	3.6	90	75	4.16	3.56	5.0	6.5	25	22
A1	33 days	..	825	-13	-6	..	..	9.6	8.8	90	100	4.2	4.08	5.8	6.7	20	22
20	4½ months	33	...	-14	-9	3.91	3.69	5.0	4.2	81	70	4.02	3.7	8.05	5.4	24	25
29	12 months	60	...	+21	+19	2.90	2.99	5.2	5.2	85	90	4.0	4.32	5.0	5.6	20	25
53	11 months	74	150	-15	-10	3.3	3.3	6.3	5.7	90	95	4.56	4.28	8.8	5.8	28	22
61	13 months	87	48	+9	+11	3.45	3.6	6.2	7.0	90	99	4.24	4.52	6.6	7.4	27	26
64	3 months	..	570	+24	+4	2.84	3.25	5.4	4.8	93	80	4.33	4.01	8.8	9.6	29	25
136	3 months	42	...	-4	+1	4.1	4.06	4.4	5.0	99	105	4.42	4.8	8.0	5.4	32	25
120	11 months	50	163	-8	-9	4.6	3.23	7.2	6.8	92	102	4.2	5.03	5.0	5.2	51	45
42	14 months	56	55	-2	-2	4.08	3.72	4.6	4.5	87	93	4.45	4.02	10.2	5.6	17	27

Patient	Length of Treatment	Polymorpho-nuclear Leuko-cytes, %		Platelets, Thousands		Bleeding Time, Minutes		Clotting Time, Minutes		Blood Sugar		Blood Urea Nitrogen		Blood Creatinine		Blood Uric Acid	
		Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
C5	3 months	71	75	200	250	1	1.5	4	4	192	122	11.3	10.8	1.1	1.4	3.84	3.96
A1	33 days	78	76	210	250	0.5	2	5	5	81	85	9.7	9	1.4	1.4	2.56	2.56
20	4½ months	69	70	200	200	1	0.5	5	4	121	94	13.2	13	1.1	1.8	2.96	2.3
29	12 months	67	72	200	300	1	1	5	4	122	112	13	13.7	1.7	1.5	2.96	2.75
53	11 months	69	76	220	270	1	1	5	4	118	158	11.7	13.4	1.3	1.5	2.24	2.54
61	13 months	69	63	250	250	1	1	3	5	94	95	14.2	14.5	1.9	1.6	2.4	2.56
64	3 months	65	72	190	210	0.5	1	4	4	80	85	8.5	11	1.6	1.2	3.68	3.2
136	3 months	65	71	239	200	0.5	1	3	4	80	84	14	11.6	1	1.3	2.58	2.9
120	11 months	44	53	190	250	1.5	1.5	4	5	87	92	10.4	10.7	1.2	1.1	2.1	2.63
42	14 months	60	70	200	250	2	0.5	5	5	98	95	11.2	12.8	1.2	1.3	3.2	3.44

Patient	Length of Treatment	Plasma Chloride		Plasma Cholesterol		Alkali Reserve		Blood Calcium		Blood Phosphorus		Total Protein		Serum Albumin		Serum Globulin	
		Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
C5	3 months	492	512	240	186	51	58	10.3	10.4	3.1	3.04	7.87	6.24	5.16	3.79	2.71	2.55
A1	33 days	518	524	188	172	66	62	10.4	10.6	2.64	3.08	6.81	6.25	4.15	3.8	2.66	2.45
20	4½ months	604	558	210	232	54	54	9.9	9.6	2.5	2.96	5.69	5.56	3.66	4.46	2.03	1.1
29	12 months	544	572	200	268	68	63	11.4	9.8	2.64	3	6.4	5.16	3.93	3.14	2.42	2.62
53	11 months	540	572	245	236	68	65	11.1	10.4	2.8	2.8	4.75	5.75	3.29	3.45	1.36	2.29
61	13 months	546	562	300	285	58	58	10.6	10.4	3	3.08	6.56	6.5	3.91	4.07	2.65	2.43
64	3 months	552	530	192	250	68	52	8.9	10.1	2.2	2.3	6.75	8.44	3.92	4.89	2.83	3.55
136	3 months	505	538	202	204	57	48	11.5	10.9	3.56	3.4	6.56	5.63	4.33	3.33	2.23	2.1
120	11 months	506	610	192	190	63	57	10.8	9.9	3.76	3.24	6.81	6.88	3.28	3.87	2.83	3.01
42	14 months	548	586	245	210	49	51	10	9.8	2.04	2.72	6.25	6.8	4.62	4.64	1.63	2.16

* Patient vomited.

stilbestrol every fourth day and 10 units of insulin daily for a period of three months maintained her blood sugar at a normal level with only an occasional spill of sugar in the urine.

CASE 2.—S. A., aged 48, complained of flushes, weakness, pruritus vulvae, interdigital dermatitis, insomnia and fatigue. Complete blood studies showed 192 mg. of sugar and 240 mg. of cholesterol. All other values were normal. The urine showed only a trace of sugar and no acetone. She was given orally from 3 to 15 mg. of stilbestrol daily and an unrestricted diet for a period of three months, during which time a gradual reduction in the hyperglycemia and complete relief of the symptoms occurred. Another complete study done at the termination of treatment showed a reduction of 70 mg. in the sugar and of 54 mg. in the cholesterol (case C5, table 8).

CASE 3.—M. D., aged 57, who had diabetes and who was maintained relatively free from hyperglycemia by a rigid diet for several years with a resultant severe weight loss, was first seen by us in September 1938. She complained of marked weakness, nervousness, hot flushes, sweats and excessive loss

benzoate she had previously received. During the year of treatment there was complete freedom from symptoms and hyperglycemia, but the cholesterol content of the blood remained approximately the same. Withdrawal of the stilbestrol on March 26, 1940, because of the appearance of malaise, nausea and epigastric discomfort, resulted in a rise of 58 mg. in the blood sugar and the appearance of marked glycosuria.

CASE 4.—D. L., aged 47, who had chronic diabetes, consulted us in the latter part of 1935 for the relief of severe menopausal symptoms. Until then her maintenance requirement of insulin had been 22 units daily. Examination showed no abnormalities other than a marked hypertension and a blood sugar of 179 mg. despite the high dose of insulin. Her urine was free from sugar and ketone bodies. Without her diet being changed, she was given 10,000 rat units of estradiol benzoate (equivalent to 100,000 international units of estrone) hypodermically twice weekly. At the end of a month, 10 units of insulin daily was sufficient to maintain the blood sugar at a normal level. During the following four years, while she was receiving varying doses of estradiol benzoate for the relief of menopausal symptoms, it was found that her insulin requirement varied inversely

with the quantity of estrogen administered. When only 2,000 rat units of estrogen was given twice weekly, she required a minimum of 15 units of insulin daily.

On March 14, 1939 stilbestrol was substituted for the estradiol benzoate. She was given 1 mg. of stilbestrol hypodermically twice weekly and 10 units of insulin daily for one year. On this regimen she remained free from hyperglycemia and glycosuria, evincing no intolerance to the stilbestrol. However, withdrawal of the insulin resulted in hyperglycemia and glycosuria. After a year's treatment with stilbestrol she developed malaise, epigastric distress and nausea without, however, showing evidence of either hepatic or renal damage (case 61, table 8).

COMMENT

It is evident from a survey of the literature and the histories of these four diabetic climacteric patients that neither the natural estrogens nor the synthetic product stilbestrol substitutes for insulin completely. When 1 mg. of stilbestrol (equivalent to 50,000 international units of estrone) is given hypodermically twice weekly, the insulin requirement is markedly decreased. There is, nevertheless, no advantage in the use of the

The untoward reactions of these 42 patients consisted mostly of nausea and vomiting. In a few, epigastric distress and abdominal pain were dominant. One patient who was given 5 mg. of stilbestrol twice daily orally had such severe epigastric pain at the start of treatment that she was removed to a hospital under the mistaken diagnosis of acute cholecystitis. Two of the 42 patients had acute dermatitis of the vulva, which may or may not have been caused by the substance. One of the group complained of a severe headache after each dose of 5 mg. given hypodermically. Another one of the group discontinued the drug because of the occurrence of trifacial neuralgia. A mild degree of nausea for a few days was complained of by 9 additional patients. It was not sufficient, however, to require discontinuation of treatment.

It must be remembered, however, that in the treatment of a large number of patients, especially of the menopausal type, over a period of many months, symptoms totally unrelated to the drug administered may appear in some of them. For instance, vertigo, pares-

TABLE 9.—Effect of Stilbestrol on the Vital Organs of Rats and Rabbits

	Daily Dose, Micrograms	Duration of Treatment, Days	Number of Animals	Mortality	Histologic Changes in Organs			
					Liver	Kidney	Spleen	Adrenal
Rats.....	75	42	10	4	Mild cloudy swelling and congestion	Mild congestion and granular degeneration	Excess pigment deposition	*
Rats...	100	48	10	0	Moderate cloudy swelling and congestion	Congestion, cloudy swelling, necrosis	Excess pigment deposition	Normal
Rats..	150	48	10	6	Severe congestion	Severe congestion and cloudy swelling	Excess pigment deposition	*
Rats...	1,000	45	10	3	Severe congestion, cloudy swelling, hemorrhage and necrosis	Severe congestion, cloudy swelling and granular degeneration	Severe pigment deposition	Severe necrosis of medulla
Rabbits...	100	31	2	0	Normal	Normal	Normal	Normal
Rabbits...	1,000	31	2	0	Normal	Normal	Normal	Normal
Rabbits.	1,500	42	3	0	Mild congestion and fatty degeneration	Mild congestion and cloudy swelling	Mild congestion	*
Rabbits.	3,000	20	4	0	Severe congestion, cloudy swelling, hemorrhage and necrosis	Severe congestion and necrosis	Congestion, excess pigmentation	Severe necrosis of medulla

* Tissue not examined.

estrogens, natural or synthetic, in the treatment of diabetes mellitus unless a severe menopausal syndrome coexists.

THE INCIDENCE OF TOXIC SYMPTOMS FROM
STILBESTROL IN THE HUMAN BEING

Most of the reports of clinical investigations conducted in Europe and, to a lesser degree, in this country indicate that, unlike the natural estrogens, stilbestrol produces toxic symptoms in from 5 to 80 per cent of the patients treated.¹⁴ The available reports are so overwhelmingly discordant that one is at a loss in forming an opinion as to the fitness of the product for human use. The reported toxic symptoms were in the form of nausea, vomiting, epigastric distress, abdominal pain, diarrhea, lassitude, cutaneous rashes and even acute psychotic reactions. They occurred equally in patients treated with stilbestrol by either the oral or the hypodermic route.

An analytic study of 189 patients treated with stilbestrol for conditions described in the foregoing paragraphs shows the occurrence of side-effects reasonably attributable to the administration of the substance and severe enough to require cessation of treatment of 42 of the patients (22.2 per cent).

thesias and even psychotic reactions are not uncommon among menopausal women. Should these symptoms develop during the administration of a given drug, there would be a natural tendency to correlate them as cause and effect. However, for the sake of accuracy, the appearance of all untoward symptoms in any of the 189 patients are herein credited to the drug.

There seems to exist, as pointed out by MacBryde,¹⁵ a definite relationship between the size of the dose of stilbestrol and the incidence of toxic symptoms (table 6). For example, only 1 of 31 patients (3.2 per cent) who had received from 0.2 to 0.5 mg. by mouth daily for a period of months could not tolerate the substance, whereas 9 of 51 patients (17.7 per cent) who had received 1 mg. by mouth daily were intolerant to the drug. The incidence of nausea and vomiting rose gradually with the increase in size of the dose and exceeded 30 per cent when 3 or 5 mg. was given daily by the oral route. These are, however, enormous doses, 5 mg. of stilbestrol being equal to 250,000 international units of estrone. It must nevertheless be remembered that equivalent oral doses of estradiol have never, in our experience, produced any untoward symptoms. The therapeutic effectiveness, however, of orally administered estradiol is doubtful.

14. Bishop, P. M. F.; Boycott, Muriel, and Zuckerman, S.: The Estrogenic Properties of "Stilbestrol" (Diethylstilbestrol), *Lancet* 1:5 (Jan. 7) 1939. Shorr, Robinson and Papanicolaou.⁴

15. MacBryde, Cyril M.; Freedman, Harold, and Loeffel, Ellen: Studies on Stilbestrol; Preliminary Statement, *J. A. M. A.* 113:232 (Dec. 23) 1939.

The hypodermic administration of from 0.2 to 0.5 mg. of stilbestrol every fourth day, comparable in therapeutic effectiveness to like doses given daily by mouth, also produced side effects in only 1 of 43 patients (2.3 per cent). The incidence of toxic symptoms in the hypodermically treated patients likewise gradually rose with the increase in dosage, so that the administration of 2 mg. or more every fourth day resulted in untoward reactions in as many as 52.4 per cent (table 6).

From the foregoing, it is evident that the administration of from 0.2 to 0.5 mg. daily by mouth or every fourth day hypodermically produces gastrointestinal symptoms in only 3 per cent of the patients. These small doses of stilbestrol, representing a potency of from 10,000 to 25,000 international units of estrone, are, however, insufficient for many patients suffering from the menopausal syndrome. If larger doses of estrogen are necessary, stilbestrol cannot and should not be employed because of the high incidence of untoward reactions.

That the gastrointestinal symptoms evoked by the administration of large doses of stilbestrol are of central origin is evident from the fact that the hypodermic administration of comparable doses produces a higher incidence of such symptoms than the oral administration does (table 6).

The time of appearance of toxic symptoms varied somewhat with the mode of administration. They appeared within a day or two of the beginning of treatment in 27 of the 32 patients who were intolerant to the oral administration of stilbestrol but appeared much later in 8 of the 10 who were intolerant to the hypodermic administration of the substance (table 7).

THE POSSIBILITY OF TISSUE DAMAGE FROM STILBESTROL IN THE HUMAN BEING

Clinical observations limited to general physical examination, urinalysis and hemoglobin estimations at regular intervals failed to reveal changes in any of the 139 patients who received stilbestrol for periods varying from one to fourteen months or in any of the 42 patients who showed early or late intolerance to the substance. The 8 puerperal patients who received stilbestrol for only a few days are not included here.

An exhaustive clinical and laboratory study before and after treatment of 10 patients who received total doses of from 35 to 825 mg. of stilbestrol—an average of 274.9 mg. for each patient—likewise failed to show definite evidence of tissue damage. The laboratory studies in each of these 10 patients included determination of the basal metabolism, complete blood count, bleeding and coagulation times, hippuric acid excretion for liver function, urinalysis, alkali reserve and the content in the blood of sugar, urea nitrogen, creatinine, uric acid, chloride, cholesterol, calcium, phosphorus, total protein, albumin and globulin (table 8).

In 2 of these 10 cases (29 and 61, table 8), exhaustively studied before and after a course of treatment with 1 mg. of stilbestrol hypodermically twice weekly, toxic symptoms developed at the end of a year's treatment. The final studies, at this time, showed no significant alterations. Nevertheless, several subsequent attempts to administer stilbestrol in like manner promptly resulted in recurrence of the nausea and epigastric discomfort.

A perusal of table 8 will show a significant shift in the blood cholesterol of 2 patients. Whether or not this was caused by the medication is problematic.

THE EFFECTS OF STILBESTROL ON THE VITAL ORGANS OF RATS AND RABBITS

As seen in table 9, the daily injection of 75 micrograms, or approximately 0.5 microgram per gram of body weight, of stilbestrol for a period of forty-two days in rats resulted in cloudy swelling and congestion in the liver and kidneys, and in the deposit of pigment in the spleen which indicates excessive blood destruction. Daily injections of 1,500 micrograms of stilbestrol, or approximately 0.5 microgram per gram of body weight, for a period of forty-two days in rabbits also produced cloudy swelling of the liver, kidneys and spleen. Larger doses in both species caused severer tissue damage in the form of necrosis. Doses smaller than 0.5 microgram per gram of body weight, given over long periods, produced no discernible changes in the vital organs of the rabbit (table 9).

It therefore seems that both the rat and the rabbit are almost equally susceptible to stilbestrol and that the damaging dose in both species is approximately 0.5 microgram per gram of body weight. It should be remembered however that, as small as these doses seem in terms of weight, the 75 micrograms given daily to the rats represent, in terms of estrogenic potency, 375 rat units or 3,750 international units of estrone. Similarly, the 1,500 micrograms given daily to the rabbits represent 7,500 rat units or 75,000 international units of estrone. It must, moreover, be remembered that even the natural estrogens when given in much larger doses also produce tissue damage in the experimental animal.¹⁶

From these experimental observations on the toxicity of stilbestrol per gram of body weight of the rat and rabbit, a woman weighing 150 pounds (68 Kg.) would theoretically sustain no tissue damage from the daily hypodermic administration of 30 mg. of stilbestrol. However, as shown in the preceding paragraphs, the susceptibility of the human being to the substance is quite apparent, since as little as 2 mg. given parenterally every fourth day produced toxic side effects.

CONCLUSIONS

The clinical and experimental observations on stilbestrol herein recorded justify the following conclusions:

1. Stilbestrol is a highly effective estrogen when administered either orally or hypodermically. The ratio between the effective oral and hypodermic doses is 5 to 1 in the human being as well as in the rat.
2. In women who can tolerate stilbestrol, it produces all the therapeutic effects obtainable with the use of the natural estrogens.
3. Stilbestrol is highly toxic as compared with the natural estrogens, evoking nausea, vomiting, epigastric pain and malaise in 52.4 per cent of patients who receive 2 mg. (equivalent to 10,000 rat units) hypodermically every fourth day. Given orally at this dosage level, the incidence of toxicity is considerably less (21.3 per cent).
4. Stilbestrol may be safely administered in doses not exceeding 0.5 mg. daily by mouth or every fourth day hypodermically. At this dosage level the incidence of nausea and vomiting is only 3 per cent.
5. Tissue damage in the human being resulting from the administration of relatively large doses of stilbestrol,

16. Selye, Hans: On Toxicity of Estrogens with Special Reference to Diethylstilbestrol, *Canad. M. A. J.* 41:48 (July) 1939.

given over a long period of time, is not demonstrable by physical examination and the laboratory means at our disposal.

6. In the rat and the rabbit, the daily administration of as little as 0.5 microgram of stilbestrol per gram of body weight produces cloudy swelling and congestion in the liver and kidneys. Larger doses produce necrosis of the liver, kidneys and adrenal glands of these species.

ABSTRACT OF DISCUSSION

DR. THEODORE NEUSTAEDTER, New York: I am unable to discuss the intramuscular injection of stilbestrol, for my associates and I have confined ourselves solely to the oral administration of the drug. Our series of menopausal cases numbers 54. These have been treated for a minimum period of six months or more. Our series is larger, but treatment of these hasn't as yet extended over a period of six months. The dosage has varied from 0.1 to 5 mg. three times daily. In this group there were 5 cases of nausea and vomiting, 6 cases of slight nausea which disappeared when the dosage was reduced, 1 gastric upset, 1 case of drowsiness and dizziness and 1 of abdominal distress. On the whole the toxic effects so far have not been especially serious. Peculiarly enough our results, as far as the increase of the size of the dose, are not in accord with the authors', since there are patients who require as much as 15 mg. daily, who tolerate the dose well and whose symptoms are well controlled. The vaginal smear is no indication of symptomatic improvement. I agree with the authors' results. The effectiveness of oral administration is in striking contrast to the use of estrogen by mouth. Larger dosage of estradiol orally is required to produce the particular changes in the endometrium. In some instances, after the withdrawal of therapy, bleeding—which is similar to that found after withdrawal of estradiol—has occurred. The authors report 68 per cent of cases with marked relief. We have found as high as 85 per cent marked relief of the menopausal symptoms with stilbestrol. Possibly when our series is as large as theirs this percentage may be lower. This slide shows the stimulation of a definite follicular effect with a small dose, something we cannot do orally with estradiol or any of the estrogens in small amount.

DR. L. M. RANDALL, Rochester, Minn.: The authors should be commended on this survey of an important situation. All realize the need for an estrogenic substance that can be administered effectively, economically and safely by mouth. Ample evidence exists to prove the estrogenic effectiveness of stilbestrol, and apparently the expense of therapy would be greatly reduced were it generally available. We are now interested chiefly in the safety factor. Dr. Mazer and his colleagues state that 22.2 per cent of all patients who received stilbestrol manifested toxic symptoms that resulted in the cessation of treatment; 17.7 per cent of these patients received a dose of 1 mg. of stilbestrol. It may be noted, however, that the authors gave the patients the benefit of doubt and probably included untoward symptoms that perhaps could not be attributed to the stilbestrol. Their extensive laboratory examination of a group of patients did not indicate any evidence of damage to bodily tissues as far as these tests were able to detect them. One may point out that as yet there is no workable knowledge concerning the metabolism of stilbestrol in the body. Engel has indicated that this substance is not conjugated in the liver; hence one may not take the negative results of these tests too literally. At any rate, it seems reasonable to state that if toxic symptoms do not appear one may safely administer stilbestrol over a long period of time with no detectable evidence of tissue damage. Nor can one yet be certain that some patients may not be encountered who have idiosyncrasies to stilbestrol. One has had experience with cinchophen and dinitrophenol that should make one a little cautious. At the Mayo Clinic we have treated approximately 72 patients in the last fourteen months with doses up to 1 mg. of stilbestrol daily. This may have been administered in divided doses or as a single dose. These patients have been practically all those in whom we were treating menopausal symptoms. In our experience the percentage of toxic symptoms has been less than 5 per cent, corresponding closely to those of Dr. Neustaedter. When the dose has been increased to more than 1 mg. a day the

percentage of toxic symptoms has rather sharply increased. Such investigations as reported here, coupled with our experience, lead us to plan to continue with no greater than a 1 mg. dose a day. A substance that has as high an incidence of toxic effects should be used with some circumspection.

DR. A. A. HEROLD, Shreveport, La.: I should like to ask the authors to explain one feature which they brought out, and that is their reference to the beneficial effect on diabetes of this preparation. I notice that they mentioned the fact that large doses were followed by destruction of the adrenals and I wonder if that explains the beneficial effect on the diabetes.

DR. CHARLES MAZER, Philadelphia: The reduction in the blood sugar of diabetic patients by the administration of the natural estrogens or stilbestrol is apparently through inhibition of the diabetogenic hormone of the anterior pituitary lobe. In the depancreatized dog the daily administration of 200 units of estrogen reduces the blood sugar considerably. In diabetic patients we have likewise seen marked reduction in the blood sugar and the insulin requirement when the natural or the synthetic estrogens are administered in adequate doses. That the reduction of the blood sugar in diabetic patients is not through inhibition or destruction of the adrenal cortex is evident from the fact that none of them showed any symptoms of adrenal insufficiency. It would be safe to put stilbestrol on the market if the individual dose were not to exceed 0.5 mg., given either daily orally or every fourth day hypodermically. However, physicians are prone to use large doses, which may produce indiscernible tissue damage. Our means of determining mild tissue damage in the human being are still not all one may desire. Animals, however, show definite evidence of necrosis at the dosage level of 0.5 microgram daily per gram of body weight.

SODIUM PERBORATE OINTMENT AND POISON IVY DERMATITIS

BEDFORD SHELMIRE, M.D.

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A recent article in *Public Health Reports*¹ discussed editorially in *THE JOURNAL*² recommends a vanishing cream containing a nonirritating, nonstaining oxidizing agent, such as 10 per cent sodium perborate, as an effective preventive against poison ivy dermatitis. The oxygen liberated by the perborate ointment was said to detoxify the highly allergenic ivy oleoresin. The publicity accorded this new preventive will undoubtedly give many ivy sensitive subjects a false sense of security and result in instances of widespread dermatitis in credulous individuals.

The very stable dermatitis producing fraction of the oleoresin of poison ivy decomposes and becomes inert slowly, if at all, in the presence of large amounts of free oxygen. In my hands this recommended ointment has afforded no greater safeguard against poison ivy dermatitis than has calamine or zinc oxide in vanishing cream, zinc oxide ointment or plain petrolatum, all of which offer only slight mechanical protection.

Since McNair in 1923³ stated that the milky juice of poison ivy turns black on exposure to the air and thereby loses its toxic properties, physicians have attempted to find some oxidizing agent which would quickly render inert the dermatitis producing sap of this plant. The action of the neutralizing agent must

The persons tested in these experiments have been observed in repeated attacks of clinically acquired poison ivy dermatitis. They are regularly employed by me as patch test subjects and paid from a grant by Eli Lilly & Co. for the study of poison ivy sensitivity.

1. Schwartz, Louis; Warren, L. H., and Goldman, F. H.: Protective Ointment for the Prevention of Poison Ivy Dermatitis, *Pub. Health Rep.* 55: 1327 (July 26) 1940.

2. Poison Ivy Dermatitis, editorial, *J. A. M. A.* 115: 862 (Sept. 7) 1940.

3. McNair, J. B.: *Rhus Dermatitis: Its Pathology and Chemotherapy*, Chicago, University of Chicago Press, 1923.

be rapid, since poison ivy dermatitis cannot be prevented if the sap is left in contact with the skin for longer than a few minutes before being removed thoroughly by cleansing with soap and water, ether, acetone and other solvents.⁴

Little was known about patch testing and allergic cutaneous reactions at the time McNair made his statement that the black ivy sap is nontoxic. He apparently formed his erroneous conclusion that the black oxidized sap is nonantigenic because of the absence of irritative rather than lack of true allergic cutaneous reactions.

EXPERIMENTAL STUDY

The fresh milky sap of the poison ivy plant is a marked cutaneous irritant for both man and animal. On exposure to the air this sap turns into a black gummy substance which on aging becomes very hard and slowly loses the greater part of its irritative quality but seems to retain all, or the major portion, of its antigenic potency.

A small drop of the milky juice expressed from the broken end of the petiole of a poison ivy leaf was placed in an open glass container. The sap rapidly became brownish black. After exposure to the air for two months the black, brittle, shellac-like, match-head sized film on the glass was partially dissolved by the addition of 1 ounce (30 cc.) of acetone. Frankly vesicular patch reactions were evoked when the latter material was dropped on the skin of ivy sensitive persons. Control tests were negative.

The trunks of two species of poison ivy (*Toxicodendron radicans* and *T. quercifolia*) were blazed with a knife. One week later the black oxidized gummy exudates were carefully collected with a small knife blade, and match-head sized portions were placed in glass containers. After standing exposed to the air for three months the small firm masses were partially dissolved in 1 cc. of ether. When this ether, which contained the soluble dermatitis producing fraction of the sap, was diluted one thousand times with acetone and applied to the skins of ivy sensitive persons, frankly vesicular patch reactions were evoked.

Leaves of the poison ivy plant were crushed between small squares of cotton cloth. Presence of the oleoresin on the cloth was indicated by the black stains which appeared on the squares half an hour later. After storage in open glass containers at room temperature for one year, these squares proved highly allergenic for ivy sensitive persons when moistened with ether and used for patch test material.

The black, oxidized sap of poison ivy is therefore highly potent and not inert as originally stated by McNair.

One cc. of oleoresin extracted from ivy leaves was dissolved in 10 cc. of ether. This mixture was poured into a pint fruit jar, 1 ounce (30 Gm.) of powdered sodium perborate added and the jar half filled with tap water. After thorough shaking, the jar top was removed and the mixture allowed to stand exposed to the air. During the next five days 5 additional ounces of perborate was added to the jar. Almost continuous bubbling of the mixture indicated the liberation of large amounts of free oxygen. After standing for an additional twenty-four hours, ether was added and the mixture thoroughly agitated. The supernatant greenish ether was separated from the underlying water and

perborate by separatory funnel. On evaporation of the ether a dark green, gummy mass remained. When diluted ten thousand times with acetone, this material evoked frankly positive patch reactions on ivy sensitive persons. Large amounts of sodium perborate had certainly not rendered the ivy oleoresin inert during a contact period of seven days. Like results were obtained when ivy oleoresins extracted from the bark of branches and from roots were similarly treated with large amounts of perborate.

Saturated solutions of sodium perborate were then mixed with equal parts of 1:100 ether dilutions of ivy oleoresins obtained from leaves, bark and roots. Additional perborate was added at intervals to insure the almost continuous liberation of free oxygen. After standing for two weeks, ether was added to restore the oleoresins to the 1:100 dilution. Patch tests with the three solutions evoked intense vesicular reactions on persons clinically sensitive to poison ivy.

Five drops of ivy oleoresin extracted with ether from freshly gathered ivy leaves were placed in 1 ounce of freshly prepared 10 per cent sodium perborate in vanishing cream. After thorough stirring, the mixture was allowed to stand for one week, a few drops of water and a small amount of sodium perborate being added daily to assure the almost continuous liberation of oxygen. Patch tests with this cream evoked frankly vesicular patch reactions on ivy sensitive persons.

Five drops of the fresh milky sap of poison ivy were placed in 1 ounce of a freshly prepared 10 per cent perborate cream. Water and perborate were similarly added for seven days. Intense reactions were evoked when this cream was then rubbed on the skins of ivy sensitive persons. No reactions were elicited when the cream was similarly applied to nonsensitive controls.

Two cc. of acetone was placed in a 10 cc. glass vial and 1 drop of the fresh milky juice from a broken ivy leaf petiole dropped in the vial and the solution thoroughly agitated. After standing for one week, 2 cc. of water and 1 Gm. of powdered sodium perborate were added. Bubbling of the mixture indicated liberation of free oxygen. After standing for twenty-four hours, 2 cc. of hydrogen peroxide and a small piece of decaying meat were added to the vial. Foaming of the mixture indicated the liberation of large amounts of free oxygen. One cc. of ether was then added to replace the partially evaporated acetone. After thorough agitation the supernatant ether was removed with a pipet. This material evoked frankly vesicular patch reactions on ivy sensitive volunteers. Large amounts of free oxygen had failed to detoxify 1 drop of the fresh milky sap of the ivy plant. This experiment was repeated with drops of milky sap from the three recognized species of poison ivy (*Toxicodendron radicans*, *T. quercifolia* and *T. diversiloba*), all of which are cultivated in my own back yard.

Linear areas of the backs of persons sensitive to ivy were liberally smeared with plain petrolatum, zinc oxide ointment and 10 per cent sodium perborate, 10 per cent calamine and 10 per cent zinc oxide in vanishing cream. One-half hour later the treated sites and untreated cutaneous areas were patch tested with ivy oleoresin diluted one thousand, five thousand and ten thousand times with acetone. There was no demonstrable reduction in the cutaneous reactions at the treated sites. Areas of untreated skin were then painted with the various dilutions of ivy in acetone and the sites liberally covered

4. Shel mire, Bedford: Contact Dermatitis from Weeds: Patch Testing with Their Oleoresins, J. A. M. A. 113: 1085 (Sept. 16) 1939.

with the various ointments and creams. The protective coverings did not lessen the cutaneous reactions, as vesiculation occurred at all the tested sites.

Areas of skin were similarly smeared with the five protective ointments. One-half hour later 1 drop of a mixture of poison ivy oleoresin diluted one thousand times with corn oil was placed on the treated areas with a medicine dropper and the sites were covered for twenty-four hours with gauze dressings. Erythema, swelling and vesiculation occurred at the tested sites. These reactions were but slightly less than those evoked on untreated areas of skin with the same dilutions of the ivy oleoresin in corn oil. These tests were repeated six times with similar results on one person, the thighs, abdomen, chest and back being used for test sites.

Clinical ivy dermatitis is usually acquired either by direct contact with the sap which exudes from the injured vascular bundles of the ivy leaves and broken leaf petioles or indirectly from contact with sap contaminated objects as fingers, tools or clothing. Extremely sensitive persons can handle the uninjured ivy plant with absolute impunity.⁵

Separate areas of the skin of the back, legs and forearms of ivy sensitive persons were smeared with 10 per cent sodium perborate, 10 per cent calamine and 10 per cent zinc oxide in vanishing cream. After allowing for evaporation of the water in the creams, the treated areas were stroked with the broken ends of ivy leaf petioles. In all instances a vesicular dermatitis resulted from this massive exposure.

Control and similarly treated areas were then gently stroked with a crushed ivy leaf or rubbed with my contaminated fingers. Reactions at the sites covered with the perborate creams were only slightly less than those evoked on untreated areas of skin. Reactions over sites treated with the inert calamine and zinc oxide creams were frequently more reduced. The calamine and zinc oxide treated areas left a more adherent, powdery film than did the sites smeared with the perborate cream.

Difficulty was experienced in obtaining a perborate cream which would adhere to the skin. Within ten or fifteen minutes after application of the cream the powdery film would flake off the treated site. With some creams the flaky, powdery residue could be blown off with the breath. Almost the entire film would brush off with one stroke of the hand. Ten per cent perborate powder in vanishing cream was then purchased at five different drug stores. Portions of these creams were liberally smeared on the arms of four children. One-half hour after resuming ordinary play, only a trace of the protective films remained at the treated sites.

CONCLUSION

Ten per cent perborate ointment offers little protection against poison ivy dermatitis. The amount of protection afforded seems directly proportionate to the thickness of the powdery film left after evaporation of the water of the vanishing cream. That this partial protection is entirely mechanical and not due to detoxification of the oil by the perborate is indicated by the fact that the oleoresin of poison ivy deteriorates slowly, if at all, in the presence of liberal amounts of free oxygen and because of the fact that inert zinc oxide or calamine in vanishing cream affords equal protection against ivy dermatitis.

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SULFAPYRIDINE AND SULFATHIAZOLE THERAPY IN PNEUMOCOCCIC PNEUMONIA

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PHILADELPHIA

In an attempt to evaluate the comparative therapeutic effectiveness and toxicity of sulfapyridine and sulfathiazole, pneumonia patients admitted to the medical services¹ at the Philadelphia General Hospital were divided into therapeutic groups so that approximately an equal number received sulfapyridine and sulfathiazole.² This report deals with the study of 400 adult patients, the first 200 consecutively typed pneumococcal pneumonia patients from each therapeutic group. Included in this group of 400 patients are 200 who formed the basis of a previous report.³ A representative group of patients (50 treated with sulfapyridine and 56 with sulfathiazole) was studied in somewhat greater detail by laboratory methods. Our purpose in this paper is to compare the behavior and activity of the two drugs when employed in the treatment of pneumonia.

ROUTINE MANAGEMENT

As soon as the clinical diagnosis of pneumonia was established and specimens for routine laboratory studies (blood, urine and sputum) were collected, chemotherapy was begun. An initial dose of 3 Gm. of either drug by mouth was followed by 1 Gm. of the drug every four hours—unless severe signs of toxicity developed—until the temperature remained normal for forty-eight hours and the patient showed evidence of clinical improvement. The initial 3 Gm. dose was repeated in four hours in the sulfathiazole scheme of dosage in order to compensate in part for the more rapid excretion of the drug. In general, the total dosage of either drug was from 25 to 35 Gm. In certain instances, when a rapid elevation of the blood level was desired, a 5 per cent solution of sulfapyridine sodium or sulfathiazole sodium (0.06 Gm. per kilogram of body weight) in sterile distilled water was given intravenously as a supplement to oral therapy. Patients in both therapeutic groups received either sodium bicarbonate or sodium citrate in amounts equal to that of the drug. The purpose of alkali administration was to aid in maintaining solubility of excreted drug by keeping the reaction of urine near neutral. All patients were given at

From the Committee for the Study of Pneumonia, Philadelphia General Hospital.

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Owing to lack of space, this article has been abbreviated in THE JOURNAL by omission of tables and a chart. The complete article appears in the authors' reprints.

Dr. Walter J. Crocker, chief of the Division of Clinical Pathology of the Laboratories of the Philadelphia General Hospital, cooperated with the authors in this work, and technical assistance was given by Miss Shlomith Bethlany and Miss Beatrice Doak, who were detailed for this and related studies on pneumonia by the Pennsylvania State Department of Health, Division of Pneumonia Control.

1. Clinical facilities were given us for this study by the following chiefs of service: Drs. R. S. Boles, H. D. Jump, Thomas Klein, D. W. Kramer, S. A. Loewenberg, the late David Riesman, W. E. Robertson, H. W. Schaffer, T. G. Schnabel and the late R. G. Torrey.

2. Dr. George A. Harrop, Squibb Institute for Medical Research, New Brunswick, N. J., supplied the sulfathiazole used in this study.

3. Flippin, H. F.; Schwartz, Leon, and Rose, S. B.: The Comparative Effectiveness and Toxicity of Sulfathiazole and Sulfapyridine in Pneumococcal Pneumonia, *Ann. Int. Med.* 13: 2038 (May) 1940.

5. Shelmire, Belford: Cutaneous Reactions Observed During Oral Poison Ivy Therapy. *J. Allergy*, to be published.

least 2,500 cc. of fluid during each twenty-four hour period. When sulfathiazole or sulfapyridine had apparently failed to bring about a favorable clinical response within from thirty-six to forty-eight hours, the patient was usually given specific serum.

THERAPEUTIC RESULTS: MORTALITY

In this report we have included all patients with a diagnosis of pneumococcic pneumonia who received drug therapy. In general, the sex, race, age and day of disease on which treatment was begun were comparable in the two groups. Our results show no significant difference in mortality between the two drugs (table 1).

In addition to chemotherapy, type-specific serum was given to 37 patients. Of the 21 patients who received

TABLE 1.—Distribution of Types, Bacteremia and Mortality Rates

Type	Sulfapyridine Treated (200 Cases)				Sulfathiazole Treated (200 Cases)			
	All Cases		Bacteremic Cases		All Cases		Bacteremic Cases	
	Num- ber	Died	Num- ber	Died	Num- ber	Died	Num- ber	Died
I.....	41	5	6	..	40	2	8	1
II.....	11	2	1	1	7	1	1	1
III.....	31	9	4	4	38	8	6	4
IV.....	20	2	2	2	16	2	3	2
V.....	16	1	1	1	17	..	4	..
VI.....	5	1	..	..	7	2	2	..
VII.....	17	3	5	3	18	..	1	..
VIII.....	15	2	1	..	14	2	1	..
IX.....	2	1	..	..	1	..	..	..
X.....	4	..	..	..	2	..	..	..
XI.....	..	..	..	..	1	1	..	..
XII.....	5	1	1	1	1	..	1	..
XIII.....	1	..	..	..	1	..	..	..
XIV.....	6	1	1	1	9	1	2	..
XV.....	3	1	..	..	2	..	..	..
XVI.....	2	..	..	..	3	..	..	..
XVII.....	3	1	..	..	3	1	..	..
XVIII.....	5	..	..	..	4	1	1	1
XIX.....	3	..	..	..	5	..	..	..
XX.....	6	1	..	..	1	..	..	..
XXI.....	2	..	1	..	1	..	..	..
XXII.....	3	1	1	1	1	1	1	1
XXIII.....	1	..	..	..	..	..	..	..
XXIV.....	3	..	1	..	5	1	1	1
XXV.....	..	..	..	..	1	..	..	..
XXVI.....	..	..	..	..	1	..	..	..
XXVII.....	1	..	..	..	..	..	..	..
XXVIII.....	1	..	..	..	..	..	..	..
XXIX.....	..	..	..	..	1	..	..	..
XXX.....	..	..	..	..	..	..	..	..
Total.....	200	30	24	23	200	22	31	10
Mortality per cent....	15.0		51.2		11.0		32.3	
Corrected mortality per cent *.....	11.0		45.0		7.8		22.2	

* Does not include 14 patients (7 sulfapyridine, 7 sulfathiazole) who died in less than twenty-four hours after admission; 8 of these had bacteremia (4 sulfapyridine, 4 sulfathiazole).

both sulfapyridine and serum 7 died, and of the 16 patients who received sulfathiazole and serum 6 died. This group of 37 patients includes 17 with bacteremia (11 sulfapyridine, 6 sulfathiazole) with 10 deaths (7 sulfapyridine, 3 sulfathiazole). It is our impression that the administration of serum was a deciding factor in the recovery of several patients in this combined therapy group (chart 3).

ANALYSIS OF DEATHS

Of the 52 patients who died, 14 (7 sulfapyridine, 7 sulfathiazole) died within twenty-four hours after admission. Of the remainder, 16 (10 sulfapyridine, 6 sulfathiazole) had advanced cardiovascular disease. Individual cases of active pulmonary tuberculosis and of uremia on admission were encountered in each therapeutic group. In addition, 2 sulfapyridine treated patients had delirium tremens, 1 having been admitted with a broken arm and a fractured skull. One sulfa-

pyridine treated patient was proved by autopsy to have had a bronchogenic carcinoma and in the sulfathiazole series there were patients with cerebral hemorrhage, severe diabetes mellitus and pneumonia associated with an acute surgical condition.

TABLE 2.—Effect of Treatment on Temperature and Hospital Stay

	Sulfapyridine Treated (170 Cases)		Sulfathiazole Treated (178 Cases)	
	Number	Per Cent	Number	Per Cent
Critical fall in temperature *				
Within 24 hours.....	114	67.1	90	50.6
Within 48 hours.....	45	26.5	63	35.2
Within 72 hours.....	6	3.5	12	6.7
Over 72 hours.....	5	2.9	8	4.5
Temperature at normal level *				
Within 24 hours.....	44	25.9	18	10.0
Within 48 hours.....	82	48.2	74	41.6
Within 72 hours.....	20	11.8	38	21.4
Over 72 hours.....	24	14.1	48	27.0
Secondary rise in temperature (above 99 F.)*.....	27	15.9	17	9.9
Average stay in hospital †.....	13.42 days		13.43 days	

* All deaths excluded.
† Not included in this group are all deaths and patients kept in the hospital for further study and treatment of accompanying conditions.

INFLUENCE OF TREATMENT ON THE COURSE OF THE DISEASE

The most striking clinical observation was the frequency with which the initiation of drug therapy was followed within from twenty-four to forty-eight hours by a critical drop in temperature. It is apparent that the action of sulfapyridine in lowering the temperature was more rapid than that of sulfathiazole (table 2). However, a secondary rise in temperature occurred in 44 cases (27 sulfapyridine, 17 sulfathiazole), and these

TABLE 3.—Incidence of Toxic Reactions (400 Cases)

Toxic Reactions	Sulfapyridine Incidence, per Cent	Sulfathiazole Incidence, per Cent
Nausea.....	81.0	26.0
Vomiting *		
Mild.....	12.0	14.0
Moderate.....	44.0	7.5
Severe.....	4.0	0.5
Total.....	60.0	22.0
Hematuria.....		
Microscopic.....	10.0	10.0
Gross.....	1.0	0.0
Total.....	11.0	10.0
Dermatitis.....	1.5	2.5
Conjunctivitis.....	0.0	0.5
Drug fever ?.....	4.5	2.5
Psychosis ?.....	8.0	4.5
Leukopenia (below 5,000 W.B.C.).....	5.0	3.0
Pain in loin.....	1.0	..
Renal calculi.....	..	0.5

* Mild, less than three times; moderate, three or more times; severe, necessitated stopping drug.

usually required further drug therapy. Since chemotherapy was continued until clinical improvement was definitely established, it is noteworthy that its average duration was practically the same, four and four-tenths and four and six-tenths days respectively for groups of patients receiving sulfapyridine and sulfathiazole. The average number of hospital days for patients in the two therapeutic groups also was the same, thirteen and four-tenths days. In estimating the average number

of hospital days, we have excluded all patients who died or who remained in the hospital because of conditions other than pneumonia.

COMPLICATIONS

The incidence of complications was low and comparable in the two therapeutic groups. Empyema developed in 5 patients (3 sulfapyridine, 2 sulfathiazole) with 1 in each therapeutic group dying. Two patients, 1 in each group, contracted endocarditis and died. Massive pleural effusion occurred in 15 cases (7 sulfapyridine, 8 sulfathiazole). Phlebitis developed in 1 patient in the sulfapyridine series, and individual patients with metastatic abscess and otitis media were observed in the sulfathiazole-treated group.

TOXIC REACTIONS

The most frequent toxic effects of both drugs were nausea and vomiting (table 3). Both symptoms appeared usually during the first twenty-four hours of drug therapy. The vomiting associated with sulfapyridine therapy was greater in frequency (60 per cent) and severity than that accompanying sulfathiazole treatment (22 per cent), a highly significant difference. Also, the severe nausea which frequently accompanied sulfapyridine medication (84 per cent) was milder and

TABLE 6.—Temperature Response at Various Concentrations of Sulfapyridine and Sulfathiazole in Blood

Concentration of Free Drug, Mg. per 100 Cc.	Sulfapyridine				Sulfathiazole			
	Days of Treatment Preceding Return to Normal Temperature				Days of Treatment Preceding Return to Normal Temperature			
	0-2	2-4	4-6	Over 6	0-2	2-4	4-6	Over 6
0-2	1	..	..	..	..	..	..	..
2.1-4	5	..	1	..	11	..	1	..
4.1-6	8	2	..	1	10	7	3	2
6.1-8	11	..	..	..	5	4	..	..
8.1-10	11	1	..	..	..	1	..	1
10.1-15	2	1	..	..	1	1	..	1
Concentration of Free Drug, Mg. per 100 Cc.	Days of Treatment Preceding Critical Fall in Temperature				Days of Treatment Preceding Critical Fall in Temperature			
	0-2	2-4	4-6	Over 6	0-2	2-4	4-6	Over 6
	1	2	3	4	5	6	7	8
0-2	1	..	..	..	..	..	..	..
2.1-4	6	..	..	..	11	..	..	..
4.1-6	12	..	..	..	16	1	..	..
6.1-8	17	..	..	..	23	..	..	..
8.1-10	5	..	..	..	4	1	..	..
10.1-15	3	..	..	..	2	..	..	..

comparatively infrequent in those patients receiving sulfathiazole (26 per cent) and was seldom experienced between attacks of vomiting. It was necessary to discontinue treatment of 8 patients receiving sulfapyridine because of severe vomiting as compared with only 1 patient receiving sulfathiazole. It is noteworthy that of those who vomited, four fifths of the sulfapyridine-treated patients and only two fifths of those treated with sulfathiazole vomited more than once or twice.

Toxic effects involving the urinary tract have presented disturbing features of therapy with both drugs. Microscopic hematuria was encountered in 10 per cent of the cases in both therapeutic groups. Gross hematuria was observed in 2 cases in the sulfapyridine group; pain in the loin, probably ureteral in origin, was also present in 2 cases in this group. In 1 this was associated with gross hematuria. After treatment with sulfapyridine or sulfathiazole, crystals presumably of the drugs or of derivatives occasionally have been observed in the urine. In a case of endocarditis terminating fatally, crystals of acetylsulfathiazole in the pelvis and tubules of both kidneys were found at autopsy. Despite these renal complications acute nephritis accompanying pneumonia is not necessarily a contraindication for drug therapy (chart 1).

Blood urea nitrogen (chart 6) showed no distinct trend during chemotherapy and no significant difference between sulfathiazole and sulfapyridine. Likewise, no difference in incidence or trend of oliguria was seen (chart 6). Hyposthenuria was observed with greater

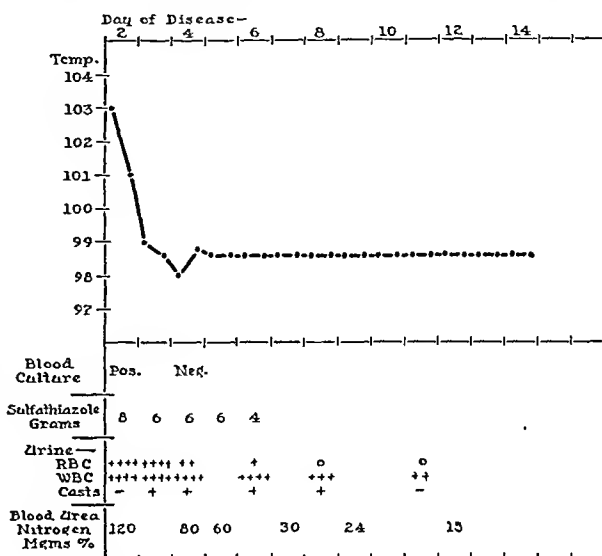


Chart 1 (A. M., a white youth aged 15).—Type VI pneumococcal pneumonia with acute nephritis and bacteremia on admission.

frequency in cases in the sulfathiazole group, but this finding is offset by its higher incidence in this group when therapy was started (chart 6).

Dermatitis, apparently caused by the administration of these drugs, was noted in 3 cases (2 maculopapular and 1 urticarial) in the sulfapyridine group and in 5 cases (3 maculopapular and 2 urticarial) in the sulfathiazole group. One patient treated with sulfathiazole showed mild conjunctivitis associated with a drug rash (purplish red subcutaneous nodules) and joint pain.

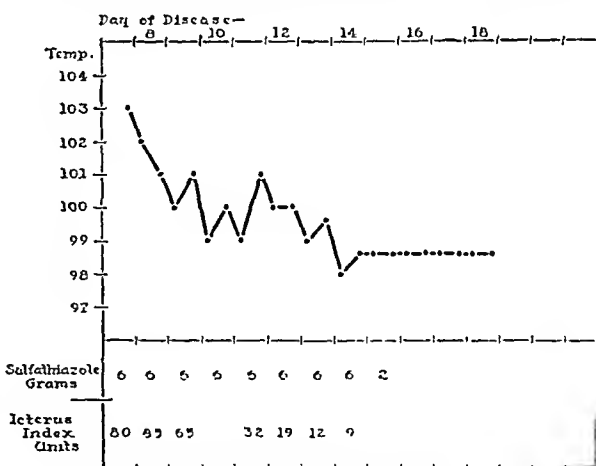


Chart 2 (W. C., a Negro man aged 49).—Type IV pneumococcal pneumonia with acute hepatitis on admission.

This complication appeared to be similar to lesions described by Haviland and Long.⁴

The question of drug fever is difficult to evaluate in pneumonia patients, although 14 patients (9 sulfa-

4. Haviland, J. W., and Long, P. H.: Skin, Conjunctival and Scleral Reactions in the Course of Therapy with Sulfathiazole, *Bull. Johns Hopkins Hosp.* 66: 313 (May) 1940.

pyridine, 5 sulfathiazole) apparently showed this condition. Also, psychosis is difficult to attribute to the use of chemical agents in an acutely febrile disease such as pneumonia. However, we have encountered 25 patients (16 sulfapyridine, 9 sulfathiazole) whose symptoms may have been due to the drug.

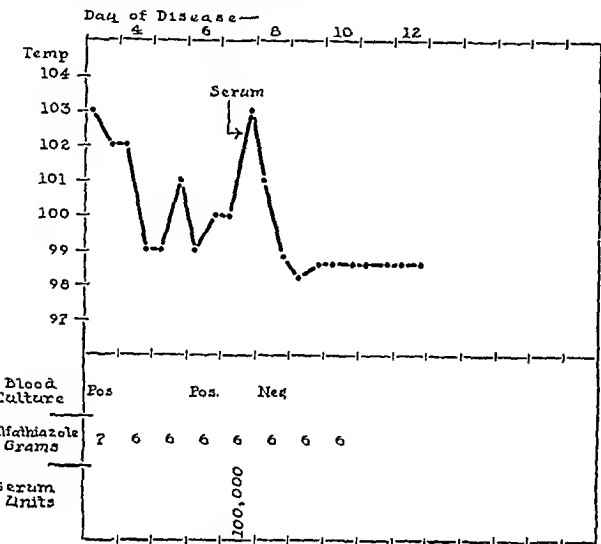


Chart 3 (J. F., a white man aged 39).—Type XIV pneumococcal pneumonia with bacteremia treated with sulfathiazole plus serum.

Repeated blood studies showed little evidence of a marked reduction in hemoglobin, red blood cell or white blood cell count that could be attributed to either drug. There were no cases of hemolytic anemia or agranulocytosis in either group, although a relative granulopenia (less than 50 per cent polymorphonuclear cells) was encountered in 3 cases in the sulfapyridine group and in 2 in the sulfathiazole group. In the majority of cases the white blood cell count tended to drop during the first forty-eight hours, coincident with the drop in temperature in both groups. Average white blood cell counts at the beginning and end of therapy made on a representative group of patients are shown in chart 6. White blood counts below 5,000 were noted in 16 cases (10 sulfapyridine, 6 sulfathiazole). The red cell count and hemoglobin likewise fell in a number of cases, but in view of the marked dehydration of most of our patients on admission it has been difficult to evaluate this apparent secondary anemia. Actually, little change in hemoglobin concentration occurred in the group as a whole (chart 6); however, some evidence of a negative correlation (correlation coefficient = -0.31) was observed between hemoglobin and free sulfathiazole. A similar relationship was not significant in the case of sulfapyridine.

We have not encountered in this series hepatitis caused by sulfapyridine or sulfathiazole, although a number of patients showed clinical or subclinical jaundice as a complication of pneumonia. While jaundice has been regarded by many as a contraindication to therapy with sulfapyridine, our experience with jaundice due to pneumonia does not support this view. Daily measurement of the icteric index of 50 patients treated with sulfapyridine and 56 treated with sulfathiazole gave average values of 10 or higher in 9 and 13 patients respectively. The mortality, temperature response or toxic manifestations of these patients did not differ from other patients suffering with pneumonia. Chart 6 shows that during the course of the illness

there was a tendency for the icteric index first to rise and then to fall to less than the initial value. The decrease occurred before drug treatment was terminated. Chart 2 shows the response to sulfathiazole administration of a patient with clinical jaundice accompanying pneumonia.

CORRELATION BETWEEN BLOOD LEVELS AND CLINICAL MANIFESTATIONS

As already stated, a group of 106 patients (50 sulfapyridine, 56 sulfathiazole) has been studied in greater detail by laboratory methods. Conclusions concerning the influence of variations in the concentration of either drug in the blood are based on this group. The concentrations of free and conjugated drug in the blood, blood urea nitrogen, hemoglobin and icteric index were determined daily. Blood was collected between 10 and 11 a. m., from one to two hours after the previous dose of drug had been given. The results are summarized in tables 4 and 5 in the form of mean values. Concentrations of the drug fluctuated from day to day in individuals but in the absence of renal involvement tended to conform to a norm characteristic for that individual. Methods employed were those listed in an earlier paper,⁵ except that the method of Bratton and Marshall⁶ was employed for sulfapyridine and sulfathiazole determinations. Recovery of sulfathiazole added to blood has ranged between 90 and 100 per cent, and the method has proved to be satisfactory and reliable for determination of this substance in both free and acetylated form.

BLOOD CONCENTRATION OF SULFAPYRIDINE AND SULFATHIAZOLE

Patients receiving sulfapyridine showed appreciably higher concentrations of both free and acetylated drug

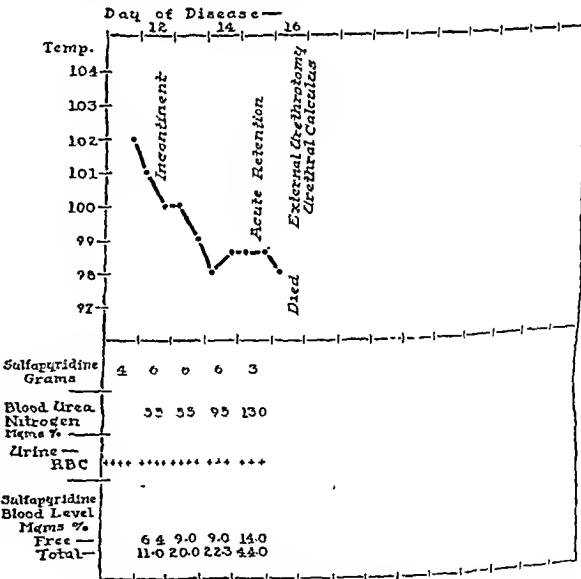


Chart 4 (H. F., a Negro man aged 49).—Type VI pneumococcal pneumonia with obstructive uropathy.

in blood than did patients receiving equivalent amounts of sulfathiazole. The average concentration of free sulfapyridine as shown by daily determinations during

5. Reinhold, J. G.; Flippin, H. F., and Schwartz, Leon: Observations on the Pharmacology and Toxicology of Sulfathiazole in Man, *Am. J. M. Sc.* 199: 393 (March) 1940.
6. Bratton, A. C., and Marshall, E. K., Jr.: A New Coupling Reagent for Sulfanilamide Determination, *J. Biol. Chem.* 128: 537 (May) 1939.

the entire period of treatment was 8.20 mg. per hundred cubic centimeters with a standard deviation of ± 3.22 , compared with an average concentration of free sulfathiazole of 5.56 mg. per hundred cubic centimeters with a standard deviation of ± 2.95 .

Studies of the behavior of sulfathiazole fed to mice and monkeys⁷ suggested that the drug was conjugated with the acetyl radical to a lesser degree than sulfapyridine. Long⁸ stated that this was true also in man. In an earlier paper⁵ we were unable to arrive at a definite conclusion concerning the differences in conjugation between the two drugs. The question has been reexamined in the course of the present study. Under identical conditions, patients receiving sulfapyridine showed an average concentration of 3.95 mg. per hundred cubic centimeters of acetylsulfapyridine with a standard deviation of ± 2.14 , while those receiving sulfathiazole showed 2.41 mg. per hundred cubic centimeters of acetylsulfathiazole with a standard deviation of ± 2.05 . The average proportion of total drug acetylated was almost identical, 32.5 per cent of sulfapyridine and 30.3 per cent of sulfathiazole. Because of the possibility that impaired renal function was influencing the extent of acetylation and observing a more characteristic relationship, a similar comparison was made in which only those patients showing no evidence of kidney damage were represented. The average proportion of drug acetylated differed little from that in the entire series, 30.4 per cent of sulfapyridine and 26.2 per cent of sulfathiazole being present as acetyl compounds in groups of 24 and 21 patients respectively.

An important difference between the two drugs is that concentration of acetylsulfathiazole is closely related to that of free sulfathiazole (coefficient of correlation = 0.56), whereas no relationship is demonstrated between free and acetylsulfapyridine (coefficient of correlation = 0.14). Administration of sulfapyridine over a period of several days often led to a moderate increase in concentration of acetylsulfapyridine in blood (chart 7). Under similar circumstances the concentration of acetylsulfathiazole tended to decrease slightly. Substitution of sodium citrate for sodium bicarbonate as a source of alkali was without influence on acetylation.

Both drugs showed correlation of a highly significant degree between blood urea nitrogen and acetylsulfapyridine and acetylsulfathiazole (coefficients of correlation = 0.69 and 0.81 respectively). Correlation between free sulfathiazole and blood urea nitrogen was less evident, whereas no relationship between urea nitrogen and free sulfapyridine was demonstrated. Accumulation in the blood of free and acetylated fractions of both sulfapyridine and sulfathiazole as an accompaniment of impaired kidney function is clearly illustrated by the record of a patient suffering from chronic nephritis (chart 5). Likewise, inability to maintain an adequate output of urine (chart 4) was accompanied often by a rise in drug concentration. Stewart, Rourke and Allen⁹ have demonstrated that the liver is the site of acetylation, although we have found little evidence of diminished conjugation in patients with increased serum bilirubin. Presumably impairment of liver function was not sufficiently severe to cause measurable changes.

7. Van Dyke, H. B.; Greep, R. O.; Rake, Geoffrey, and McKee, Clara M.: Observations on the Pharmacology of Sulfathiazole and Sulfapyridine, *Proc. Soc. Exper. Biol. & Med.* 42: 410 (Nov.) 1939.

8. Long, P. H.: Sulfathiazole; Preliminary Report of Council on Pharmacy and Chemistry, *J. A. M. A.* 114: 870 (March) 1940.

9. Stewart, J. D.; Rourke, G. Margaret, and Allen, J. G.: Acetylation of Sulfanilamide, *Surgery* 5: 232 (Feb.) 1930.

RELATIONSHIP OF BLOOD LEVEL TO THERAPEUTIC RESPONSE

The optimal blood concentration for the treatment of pneumonia has not been established conclusively. In an earlier paper we¹⁰ observed a satisfactory therapeutic response over a wide range of blood sulfapyridine concentrations. Long and Bliss¹¹ have advocated blood concentrations of from 4 to 6 mg. per hundred cubic centimeters for effective therapy of moderately ill patients, although recommending higher levels (from 7 to 10 mg. per hundred cubic centimeters) in cases

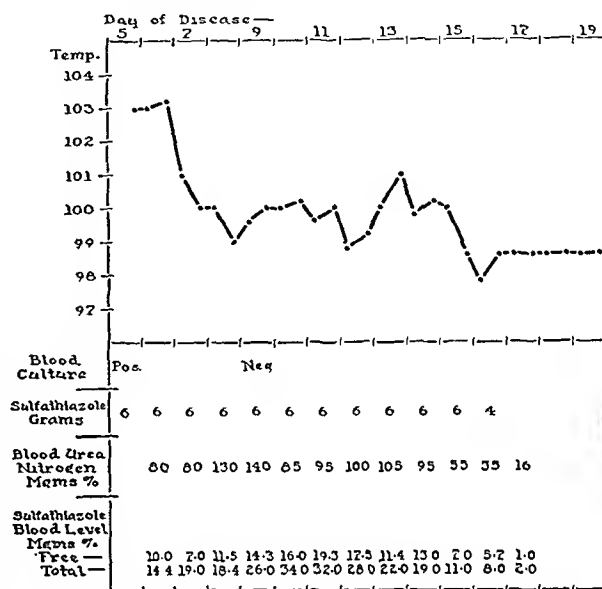


Chart 5 (L. S., a Negro man aged 50).—Type IV pneumococcal pneumonia with chronic nephritis and bacteremia on admission.

of severe involvement. Abernethy, Dowling and Hartman¹² have stated that a mean concentration of 6 mg. per hundred cubic centimeters or higher in the blood is desirable.

In order to evaluate the influence of drug concentration on therapeutic response, an attempt has been made to correlate the blood levels with the number of patients showing a critical drop in temperature within forty-eight hours of treatment (table 6). A similar tabulation has been made, based on a return to the normal temperature. For this purpose the concentrations of free drug found in the blood during the days preceding temperature response were averaged. Satisfactory response, judged by a critical fall, occurred at sulfapyridine and sulfathiazole concentrations ranging from less than 2 mg. to 15 mg. per hundred cubic centimeters.

When return to normal temperature was the basis for measurement, the difference between the response of patients with sulfapyridine concentrations below 6 mg. and that of those exceeding 6 mg. per hundred cubic centimeters was not significant when tested by the chi square method (Yates modification).¹³ Similarly, the

10. Flippin, H. F.; Lockwood, J. S.; Pepper, D. S., and Schwartz, Leon: The Treatment of Pneumococcal Pneumonia with Sulfapyridine, *J. A. M. A.* 112: 529 (Feb. 11) 1939.

11. Long, P. H., and Bliss, Eleanor A.: Clinical and Experimental Use of Sulfanilamide, Sulfapyridine and Allied Compounds, New York, Macmillan Company, 1939.

12. Abernethy, T. J.; Dowling, H. F., and Hartman, C. R.: The Treatment of Lobar Pneumonia with Sulfapyridine and Sodium Sulfapyridine with Observations on Effective Blood Levels, *Ann. Int. Med.* 13: 1121 (Jan.) 1940.

13. Statistical Methods for Research Workers, Edinburgh, R. A. Fisher, 1936.

data in table 6 fails to show any statistically significant difference between lower and higher concentrations of sulfathiazole in inducing the return of the temperature to normal when tested by the chi square method.

RELATION OF BLOOD LEVEL TO TOXIC REACTIONS

A second consideration in establishing optimal concentrations in blood of chemotherapeutic agents is the influence of concentration on toxicity. Brown, Thornton and Wilson¹⁴ have observed a higher incidence of toxic effects when large amounts of drug were given and when high concentrations of drug occurred in blood. Distinct evidence of such a relationship was encountered in the present study and is given in tables 4 and 5.

The incidence of vomiting was higher among patients exhibiting concentrations of free sulfapyridine exceeding the mean, although the difference falls just short of statistical significance tested by the chi square method. The suggested relationship was tested further by assembling into one group all patients who received sulfapyridine and vomited. The mean concentration of free sulfapyridine in blood was 8.79 mg. per hundred cubic centimeters with a standard error of ± 0.546 . The remainder, who failed to vomit, showed a mean of 6.96 mg. with a standard error of ± 0.755 . The difference is

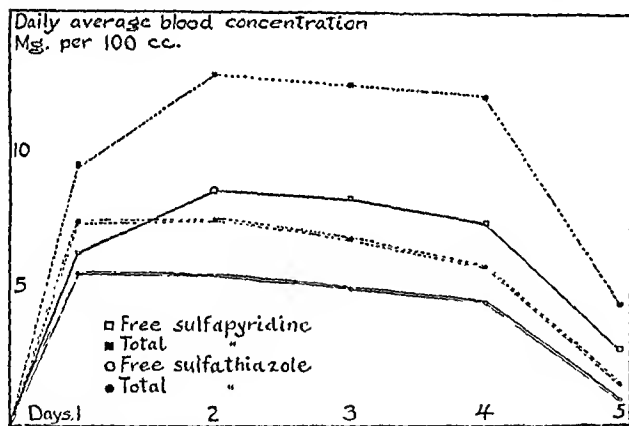


Chart 7.—Effect of oral administration of sulfathiazole (21 cases) and sulfapyridine (24 cases) for four successive days.

significant and provides evidence that higher concentrations of sulfapyridine may be a factor in vomiting. A similar relationship was less clearly demonstrated for sulfathiazole. Again, vomiting was more frequent to an extent statistically significant in patients with concentrations of sulfathiazole in blood exceeding the mean for the entire group; however, calculation of the mean concentration of sulfathiazole of those patients who vomited gave a figure that was not significantly higher than that of those who did not vomit.

Nitrogen retention (blood urea nitrogen exceeding 20) was usually accompanied by high levels of free and total sulfapyridine. While a similar association was seen less frequently for free or total sulfathiazole, the close correlation between blood urea nitrogen and concentration of acetylsulfapyridine and of acetylsulfathiazole already has been mentioned. Obviously, it is not permissible to conclude that high drug concentrations have induced nitrogen retention in these cases, although the possibility exists. The more plausible explanation is that deficient kidney function prevents rapid excretion of the drug.

A highly significant finding is the association of hematuria, either gross or microscopic, with high concentrations of acetylsulfapyridine in blood of 6 of 7 patients (chi square tested by Yates modification). The mean concentration of acetylsulfapyridine in blood of patients showing hematuria also differed from the mean of the remainder of the patients to an extent that is statistically significant. Renal or ureteral irritation caused by crystals or calculi composed of acetylsulfapyridine could explain the hematuria. Remission of hematuria and recovery occurred in all. In the sulfathiazole series the distribution of results also suggested a similar relationship between high levels of acetylated drug and hematuria. However, this was not statistically significant when tested by the chi square method, nor did the mean figures show a significant difference.

COMMENT

In our experience thus far, sulfapyridine and sulfathiazole both appeared to be effective therapeutic agents in the treatment of pneumococcic pneumonia as based on final mortality. Clinical response, as evidenced by a fall in temperature, was somewhat more striking with sulfapyridine than with sulfathiazole, although this apparent advantage had no effect on the incidence of complications and on the duration of hospitalization. Moreover, the striking frequency with which the institution of sulfapyridine therapy is followed by a critical drop in temperature within twenty-four hours may not be entirely advantageous in the light of studies *in vitro*¹⁵ showing accelerated bacteriostatic effectiveness of sulfanilamide and sulfapyridine with an increase in temperature.

In general, the more severe toxic reactions, such as serious renal involvement, blood dyscrasias and dermatitis, have been infrequent and comparable in both therapeutic groups. The hazard of severe toxic reactions increases with the prolonged use of these drugs and their use in cases of chronic organic disease complicating the acute infectious process. In the treatment of pneumonia most patients required no more than from 25 to 35 Gm. of either drug extending over a period approximating five days. We believe that this explains in part the low incidence of serious toxicity. Adequate fluid intake and the administration of alkalis are important adjuvants. It appears desirable, in order to facilitate excretion of these compounds by the kidneys, to maintain a urinary output in excess of 1,000 cc. daily.

A most troublesome and often distressing toxic effect of both sulfapyridine and sulfathiazole has been nausea and vomiting. However, vomiting has been definitely less frequent and severe in the patients treated with sulfathiazole. From the clinical point of view, this advantage is of decided importance in the management of pneumonia patients.

Administration of comparable amounts of sulfapyridine and sulfathiazole to patients suffering from pneumonia establishes appreciably higher concentrations of sulfapyridine in the blood, in part because of the more rapid rate of excretion of sulfathiazole by the kidney but mainly because sulfathiazole enters the red blood cells much less readily than does sulfapyridine.

Our data fail to demonstrate a relationship between therapeutic effectiveness and the concentration of either sulfapyridine or sulfathiazole in blood of between 2 and 15 mg. per hundred cubic centimeters. It appears that

14. Brown, W. H.; Thornton, W. B., and Wilson, J. G.: An Evaluation of the Clinical Toxicity of Sulfanilamide and Sulfapyridine, *J. A. M. A.* 114: 1605 (April 27) 1940.

15. White, H. J.: Relationship Between Temperature and Streptococcal Activity of Sulfanilamide and Sulfapyridine *in Vitro*, *J. Bact.* 38: 549 (Nov.) 1939.

therapeutic action is not enhanced by establishing concentrations of the free form of either drug exceeding 5 mg. per hundred cubic centimeters. Certain toxic manifestations occur with greater frequency as the concentration of the drug in blood increases. Thus vomiting is more prevalent at higher concentrations of either sulfapyridine or sulfathiazole. Also, high concentrations of acetylsulfapyridine in blood appear to be associated with hematuria. Therefore it should be possible to diminish the occurrence and severity of certain untoward effects by avoiding blood levels in excess of 5 mg. per hundred cubic centimeters. This conclusion applies especially to sulfathiazole, where a close dependence of acetylation on concentration of the drug in blood offers some possibility of control of the quantity of the acetylated fraction. As it is principally acetylsulfathiazole or acetylsulfapyridine that forms concretions in the urinary tract, the advantage of decreasing the amounts of the conjugated drugs requiring excretion is obvious. The greater frequency with which certain toxic effects are manifested by sulfapyridine as compared with sulfathiazole may be due in part to the higher concentration regularly attained by the former. Our results suggest that dosage on a lower scale than that widely used at this time and employed by us in this study could be used without loss of therapeutic effectiveness in the treatment of pneumonia with sulfapyridine and that certain toxic manifestations would become less frequent if this were done. It may be possible to decrease amounts of sulfathiazole also below those employed in this study. Further studies along these lines will be required.

SUMMARY

1. Two hundred adult patients with typed pneumococcal pneumonia were treated with sulfapyridine and a comparable series of 200 patients received sulfathiazole. Mortality in the two groups showed no significant difference.

2. Sulfapyridine appears to act more rapidly than sulfathiazole, as judged by a fall in temperature; however, the duration of chemotherapy, the incidence of complications and the average hospital stay were the same for the two therapeutic groups.

3. The severity and frequency of nausea and vomiting in the sulfapyridine-treated patients were significantly greater than in the patients receiving sulfathiazole. Other toxic manifestations were infrequent and comparable in the two groups.

4. The group treated with sulfapyridine showed appreciably higher concentrations of both free and acetylated forms in blood than did the group receiving equivalent amounts of sulfathiazole.

5. The average proportion of drug acetylated was the same for the two groups, but acetylation of sulfathiazole showed a close relationship to the concentration of the free drug, whereas a similar relationship was not observed for sulfapyridine.

6. Therapeutic response showed no correlation with concentrations of either drug in blood of between 2 and 15 mg. per hundred cubic centimeters.

7. Vomiting occurred more frequently at higher concentrations of free sulfapyridine. A similar relationship was demonstrated less clearly during treatment with sulfathiazole. Evidence has been obtained of a relationship between hematuria and higher concentrations of acetylsulfapyridine and possibly of acetylsulfathiazole.

ABSTRACT OF DISCUSSION

DR. HERBERT K. ENSWORTH, New York: The favorable reception which sulfapyridine has received leaves little doubt as to its efficacy in pneumococcal infection. It has, however, certain drawbacks in the form of toxic reactions. It has been hoped that some therapeutic agent would be discovered which would embody all the advantages of sulfapyridine and none of its disadvantages. Drs. Flippin, Schwartz and Reinhold have given us a report of their experience with a new drug which it was thought might fill such a bill. The evident efficacy of sulfathiazole is in their hands of the same order as that of sulfapyridine; in fact, their mortality rates in both the nonbacteremic and the bacteremic groups favor sulfathiazole slightly. The only marked advantage of sulfathiazole appears to lie in a greatly lowered incidence of nausea and vomiting, particularly of the more severe grades. During the past winter, all the pneumonia patients admitted to one of our men's medical wards at Bellevue have received sulfathiazole, and we have been able to compare the results obtained with those secured with similar groups of pneumonia patients treated simultaneously in other wards with sulfapyridine. The results of our studies confirm in the main the results at the Philadelphia General Hospital. A few of our patients have seemed to have a less dramatic fall in temperature, although their more generally favorable condition as regards the gastrointestinal tract has at least partially compensated for this. We likewise have not been able to correlate clinical response with the level of either drug in the blood. We have not thought it necessary to give more than 1 Gm. as a second dose; we have used 2 Gm. of sulfapyridine and either 2 or 3 Gm. of sulfathiazole as an initial dose. We have tried to use the smallest amount of drug consistent with satisfactory results, and we agree that the less that can be used the lower will be the incidence of untoward and particularly the more serious untoward reactions. For the uncomplicated case which responds promptly to chemotherapy we believe 16 Gm. of either drug is usually sufficient. However, it is important to give more than this to a bacteremic patient regardless of the rapidity of response. The exact relative efficiency of the two drugs will require more time to establish.

DR. E. H. LOUGHLIN, Brooklyn: The results of therapy with sulfapyridine and sulfathiazole reveal mortality rates of 11.9 and 7.8 per cent respectively. It must be noted that there were few bacteremias, 14 and 16 per cent. Drs. Spitz, Bennett and I also found a low incidence of bacteremia throughout the pneumonia season of 1939-1940. These facts undoubtedly influenced the mortality rates. During the past year we have used sulfapyridine and sulfathiazole alone and in conjunction with serum and have obtained results comparable to those presented by Drs. Flippin, Schwartz and Reinhold. Serum alone was used in a group of cases treated during the period between December 1937 and May 1939. This series was composed of 320 patients of types I, II, V, VII, VIII and XIV pneumonia treated only with homologous refined and unconcentrated rabbit antipneumococcus serum. Rabbit antipneumococcus serum compares favorably with the chemotherapeutic agents in the treatment of these types of pneumonia. There were 126 cases of type I pneumonia and in 27.1 per cent of these bacteremia was present. The mortality rate in the cases of bacteremia was 20.6 per cent. The mortality rate was 2.2 per cent in the cases in which bacteremia was not present. There were 47 patients with type II pneumonia, 33.4 per cent of whom had bacteremia and of these 18.2 per cent died. There were no nonbacteremic deaths. In 44 cases of type V pneumonia there was a bacteremic incidence of 22.7 per cent. None of these patients died. The mortality rate of the nonbacteremic patients was 2.9 per cent. There were 46 patients with type VII pneumonia with 34.8 per cent bacteremia and of these 12.5 per cent died. None of the nonbacteremic patients died. With type VIII pneumonia there were 38 patients, 31.6 per cent of whom had bacteremia. There were no deaths. There were 19 patients with type XIV pneumonia. The bacteremic incidence was 15.8 per cent and the bacteremic mortality was 33.3 per cent. None of the nonbacteremic patients died. It is difficult to compare our results with those of Drs. Flippin, Schwartz and Reinhold, since they

included 21 patients treated with sulfapyridine and 16 patients treated with sulfathiazole for whom specific serum was used also because there had been an unsatisfactory response to the chemotherapeutic agents. There is one important comparable factor in the drug and serum treated groups—the bacteremic rates. Among the sulfapyridine treated patients the bacteremic rate was 14.2 per cent; among the sulfathiazole treated patients it was 16.2 per cent, whereas among our serum treated patients it was 27 per cent. The mortality rate of our serum treated patients, including 27 per cent with bacteremia, however, was only 4.7 per cent. This low figure undoubtedly demonstrates the efficacy of the serum. The patients in this series received serum, on an average, ninety-two hours after the onset of illness. It is significant too that the temperature of almost 65 per cent of the 303 patients who recovered by crisis fell to normal within twelve hours, while 80.6 per cent had a normal temperature within twenty-four hours and 95.4 per cent had a normal temperature at the end of forty-eight hours. These figures can be compared with those presented by the authors. In the sulfapyridine and sulfathiazole treated groups only 25 per cent and 10 per cent respectively had a normal temperature at the end of twenty-four hours. Of importance is the fact that in 79 per cent of our cases this initial projected dose was successful in producing a crisis. These time elements are of particular importance when one considers that in a critical case of pneumonia a few hours delay in supplying sufficient effective therapy will unfavorably influence the outcome.

DR. JOHN F. CASEY, Boston: The profession is indebted to Dr. Flippin and the other men who have done careful scientific work on the use of these drugs in pneumonia. I agree that sulfathiazole is much less toxic than sulfanilamide or sulfapyridine. When you are giving these drugs watch the urine carefully for gross blood. If it occurs give plenty of water and, as a rule, the blood will disappear promptly. The way to cut down the mortality of pneumonia in this country now is for the general practitioner to carry these drugs, either sulfapyridine or, I think, eventually it will be sulfathiazole, with him. If you have to wait long for typing of sputum, for roentgenograms or blood counts, you have lost valuable time. I think it is important that the drug should be given as soon as you see the patient, and in adequate dose. The first dose is important. If I give sulfathiazole I give 3 Gm. for an initial dose and keep it up with 2 Gm. every four hours. If sulfapyridine is used, I give 2 Gm. every four hours for four or five doses. As a rule in sixteen to eighteen hours with the sulfapyridine and a little longer time with the sulfathiazole one gets results.

DR. HARRISON F. FLIPPIN, Philadelphia: Whether pneumonia has been mild this winter it is difficult to say. Certainly we have not found it so at the Philadelphia General Hospital and, as pointed out, 18 per cent of our patients represent type III infections. At this time I see no apparent reason to compare the therapeutic effectiveness of serum and chemotherapy. All patients with pneumococcal pneumonia should be given sulfathiazole or sulfapyridine, unless contraindications exist, and serum is administered where indicated. In our experience serum is given, in addition to drug therapy, in about 10 per cent of cases. I would emphasize the importance of maintaining a urinary output of 1,000 cc. daily in order to facilitate the excretion of these compounds by the kidneys. Although our experience with the various chemotherapeutic agents for pneumonia is limited, it is our feeling at the present time that the drug of choice in the treatment of pneumococcal pneumonia will prove to be sulfathiazole.

Miliary Tuberculosis and Fibroid Phthisis.—Fulminating pulmonary tuberculosis, such as miliary tuberculosis, is rather infrequent among persons in better circumstances, while fibroid phthisis is more likely to occur among persons under better economic surroundings. Extremely acute manifestations of rheumatic infections are relatively infrequent among the better-to-do, while the more chronic type of fibrosing mitral stenosis is more likely to occur. In both tuberculosis and rheumatic fever these differences are conditioned by better treatment, ability to obtain more rest, less arduous occupation and other considerations.—Hedley, O. F.: *Pub. Health Rep.*, Oct. 11, 1940, p. 1858.

ARTERIAL HYPERTENSION

CORRELATION OF CLINICAL AND EXPERIMENTAL OBSERVATIONS

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AND

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Increased arterial pressure of known or suspected causation occurs in at least forty-seven syndromes, which, according to pathogenesis, are grouped as neurogenic, endocrine, cardiovascular and renal.¹ However, as a problem in clinical practice, hypertension is largely limited to those syndromes called essential and malignant hypertension. The genesis of these states, which had been regarded as renal since the time of Bright, has remained obscure since their separation from glomerulonephritis in the works of Allbutt, Janeway, Volhard, Keith and others.

The demonstration by Goldblatt² that lasting hypertension occurs after partial compression of one or both main renal arteries by a metal clamp revived interest in the relationship of the kidneys to increased arterial pressure. Experimental hypertension of similar nature was subsequently induced by one of us,³ who produced fibrocollagenous perinephritis by application of silk or cellophane to the kidneys. Compression of the renal parenchyma in the scar resulted in hypertension. The experimental disease which results from either of these procedures is in most respects similar to essential and malignant hypertension in man, and, as a result, new concepts of their pathogenesis were formed. Our purpose in this report is to review the application of these concepts to the clinical problem of high blood pressure.

HUMORAL MEDIATORS

Since it forms the basis of subsequent discussion, a chemical system which links the substances that appear to be mediators of renal hypertension must first be reviewed. Briefly, renin, a protein present in the cortex of normal kidneys, although not detectable by present methods in renal venous blood of normal dogs, is liberated in increased amounts into the renal vein by the kidneys of dogs made hypertensive by renal arterial compression or by perinephritis.⁴ Renin alone does not cause vasoconstriction when perfused with Ringer's solution through isolated blood vessels. However, in blood it combines, possibly enzymatically, with a substance present in normal plasma, provisionally termed renin activator.⁵ The interaction of renin and renin activator liberates a third substance, angiotonin.⁶ Angiotonin is a highly active vasoconstrictor distinguished from most substances which increase blood pressure in that it does not cause a decrease of cutaneous temperature during its pressor action. Given in doses which increase arterial pressure, angiotonin

Read before the Indianapolis Medical Society, Oct. 8, 1940.
From the Lilly Laboratory for Clinical Research, Indianapolis City Hospital.

1. Page, I. H.: Classification of Hypertension, *J. Indiana M. A.* 22: 562, 1939.

2. Goldblatt, H.; Lynch, J.; Hanzal, R. F., and Summerville, W. W.: The Production of Persistent Hypertension in Dogs, *Am. J. Path.* 9: 942, 1933.

3. Page, I. H.: The Production of Persistent Arterial Hypertension by Cellophane Perinephritis, *J. A. M. A.* 113: 2046 (Dec. 2) 1939.

4. Page, I. H.: Demonstration of the Liberation of Renin into the Blood Stream from Kidneys of Animals Made Hypertensive by Cellophane Perinephritis, *Am. J. Physiol.* 130: 22, 1940.

5. Kohlstaedt, K. G.; Page, I. H., and Helmer, O. M.: The Activation of Renin by Blood, *Am. Heart J.* 19: 1, 1940.

6. Page, I. H., and Helmer, O. M.: A Crystalline Pressor Substance (Angiotonin) Resulting from the Reaction Between Renin and Renin Activator, *J. Exper. Med.* 71: 29, 1939.

causes vasoconstriction, which, in the kidney, predominates in the glomerular efferent arterioles.⁷ Significantly, it also increases the force of the heart beat.⁸

Normal dogs develop tolerance to successive doses of this substance. Tolerance occurs to only a small degree when both kidneys have been removed or seriously damaged.⁹ From this and other observations evidence has accumulated which indicates the presence in normal blood and normal kidneys of a substance which inhibits the action of angiotonin. Attempts to extract such an inhibitor or antipressor substance from the kidneys have been partially successful both in the hands of Grollman, Harrison and Williams¹⁰ and in ours.¹¹

CLINICAL PHYSIOLOGY

Those who have seen and felt the precordiums of patients suffering from hypertension have received the impression that the heart is laboring. The thrust and heave of the heart are obvious manifestations of increased force of its beat, just as elevation of diastolic pressure is evidence of peripheral resistance to the outflow of blood. The extent and effectiveness of cardiac augmentation in hypertension are shown in the fact that, in spite of peripheral vasoconstriction, there is no evidence of decreased peripheral blood flow. The feet and hands are warm, and there are no claudication, no cyanosis, no fainting and no renal failure until late in the course of the disease. Blood flow is maintained at efficient levels because the heart has increased its effort in propelling blood through the resistant arterial tree. Neither increased arterial pressure nor adequate peripheral blood flow can be maintained in the presence of vasoconstriction unless the heart increases the force of its beat.

The connection between peripheral vasoconstriction and cardiac augmentation is evident with a little reflection. Embryologically the heart is a specialized part of the vascular system. Therefore it is not surprising that the stimulus which increases peripheral tone should also augment cardiac effort. It is an important generalization that heart and arterial tree are not independent in hypertension; consequently, when, with the progress of the disease, increased cardiac effort may lead to premature failure, this event should be considered neither an incident nor an accident but an important phase in the natural evolution of hypertension.

Clinical observation, which has led us to a definition of the role of the heart in hypertension, also establishes the site of peripheral constriction. It is commonplace that patients suffering from this condition are not

usually pale, that the color of their nail beds is good and the temperature of the skin normal. In them, vasoconstriction is not the result of closure of capillaries and, in this respect, differs from the constriction which follows injections of epinephrine or solution of posterior pituitary. Examination of the one place where small arteries and arterioles are open to inspection, the ocular fundus, shows at once that constriction has occurred in these vessels. We may therefore conclude that increased arterial pressure in hypertension is the result of a stimulus which causes constriction of small arteries and arterioles and at the same time augments the force of the heart's beat. The reader will recall that angiotonin is capable of these effects.

As the hypertensive process continues, it results in hypertrophy of arteriolar and cardiac muscle. Arteriolar and cardiac cells increase until growth begins to exceed the limits of efficient diffusion of nutriment into them, so that regressive and degenerative changes occur. These cellular changes are reflected in cardiac failure, in cerebral and retinal lesions due to sclerosis, thrombosis or rupture and in disturbances of renal and digestive functions. With the passage of time, either as the result of cardiac failure or of arterial and arteriolar disease, blood flow through vital organs decreases until death supervenes.

Malignant hypertension, which may complicate the course of essential hypertension or which may be present from the onset of increased arterial pressure, is characterized by retinal hemorrhages and papilledema, with progressive renal, cardiac or cerebral failure leading to death usually within two to three years. Pathologically, it is manifested in widespread necrosis of the cells and obliteration of the lumens of arterioles. Clinically, the necrotizing arteriolitis and intense vasoconstriction are reflected in the retina by hemorrhages and exudates; in the heart, by ominous changes of sound and rhythm (e. g. gallop rhythm) and electrocardiographic record; in the kidney, by hematuria, proteinuria and renal failure; in the brain, by confusion, headaches and seizures. It is interesting to note in this connection that fractions have been obtained in the purification of renin by Winternitz¹² which, when injected, cause arteriolar necrosis and hemorrhages similar to those of malignant hypertension.

THE KIDNEYS IN HYPERTENSION

The usual tests of renal function may show no abnormality in the earlier phases of essential and malignant hypertension. Urea clearance, which measures the rate of removal of urea from blood by the kidneys, is frequently normal. Less commonly, the capacity of the kidneys to do work as measured by the power to concentrate urine is also unchanged. These observations would lead to the conclusion that the kidneys in early hypertension are entirely normal if other methods of examination did not disclose the presence of a characteristic renal abnormality.¹³ This functional disturbance may be demonstrated by the use of methods which measure separately the rate of flow of blood through the kidneys (calculated from plasma clearance of diodrast) and the rate of filtration of water from blood in the glomeruli (inulin clearance).

7. Corcoran, A. C., and Page, I. H.: The Effects of Angiotonin on Renal Blood Flow and Glomerular Filtration, *Am. J. Physiol.* **130**: 335, 1940. Observations have recently been reported (Corcoran, A. C.; Kohlstaedt, K. G., and Page, I. H.: *Proc. Soc. Exper. Biol. & Med.*, to be published) on the effect of intravenous injections of solutions of angiotonin in human beings. Single injections of from 0.5 to 1 cc. of the solution caused increased systolic and diastolic pressure over a period of about eight minutes. Slow infusion of angiotonin increased arterial pressure over longer periods, greatly decreased renal blood flow and increased filtration fraction, apparently as the result of intense efferent arteriolar constriction. Neither pallor nor subjective complaints were observed during the increase of arterial pressure.

8. Andrus, E. C., and Hill, W. H. P.: Effect of Renin and Angiotonin upon Isolated Perfused Heart, *Proc. Soc. Exper. Biol. & Med.* **44**: 213, 1940.

9. Page, I. H., and Helmer, O. M.: Angiotonin Activator, Renin and Angiotonin Inhibitor, and the Mechanism of Angiotonin Tachyphylaxis in Normal, Hypertensive and Nephrectomized Animals, *J. Exper. Med.* **71**: 495, 1940.

10. Harrison, T. R.; Grollman, A., and Williams, J. R., Jr.: Humoral Agents in the Causation of Hypertension, in *Blood, Heart, and Circulation. Symposium*, Washington, D. C., Science Press, 1940, p. 274.

11. Williams, J. R.; Grollman, A., and Harrison, T. R.: Renal Extract in Experimental Hypertension, *Am. J. Physiol.* **130**: 496, 1940.

12. Page, I. H.: Newer Aspects of Experimental Hypertension, in *Blood, Heart, and Circulation*, p. 239. Page, Helmer, Kohlstaedt, Foutz, Kempf and Corcoran.²⁰

12. Winternitz, M. C.: Views as to Causes of Coronary Sclerosis, in *Blood, Heart, and Circulation*, p. 114.

13. Smith, H. W.: Studies in the Physiology of the Kidney: The Renal Blood Flow in Normal and Hypertensive Subjects, in *Porter Lecture Series*, Lawrence, Kan., University of Kansas, University Extension Division, 1939, no. 9.

Filtration of water and dissolved solids, such as urea and inulin, depends on the pressure exerted within the glomeruli on the blood plasma. Normally from 16 to 20 per cent of the water is filtered into the renal tubules. In hypertension more than 20, even 30 or 35 per cent, of the plasma water may be forced through the glomerular membrane.¹⁴ This increased filtration can occur only as the result of elevated intraglomerular pressure. Since it cannot arise from increased systemic arterial pressure alone,¹⁵ the increased intraglomerular pressure of hypertension might conceivably result from (a) opening arterioles proximal to the glomeruli (afferent arterioles) or (b) from constricting arterioles distal to the glomeruli (efferent arterioles). If the increased pressure were due to dilatation of afferent arterioles, the resistance to the flow of blood through the kidneys would be decreased, so that we would expect increased renal blood flows in hypertension. Actually, the rate of renal blood flow is decreased. The increase of intraglomerular pressure is therefore due to constriction of the efferent arterioles, which at once increases the filtration pressure and restricts the flow of blood through the kidneys. It will be recalled that this is one of the characteristic effects of angiotonin.

The maintenance of normal urea clearance in hypertension is due to this abnormality. Urea clearance is a measure of the rate at which urea is filtered from the blood into the renal tubules. With efferent arteriolar constriction less blood may pass through the glomeruli, but relatively more water and urea are filtered off. If, for example, renal blood flow in a patient suffering from hypertension has decreased 30 per cent, an increase of filtration pressure sufficient to squeeze 26 instead of 20 per cent of the plasma water and urea through the glomeruli would maintain urea clearance at a normal rate. Such a finding is not uncommon. The hypertensive patient is not therefore to be congratulated unreservedly on a normal urea clearance, since the normal finding may express intense efferent arteriolar constriction.

Renal vasoconstriction and ischemia in time result in degenerative and occlusive arteriolar changes which interfere with the normal nutrition of the renal tubules. As these die or lose their capacity to work, the kidneys are no longer able to concentrate urine by reabsorbing water from the glomerular filtrate. In its late phases this loss of renal tissue will be manifested in nocturia and polyuria. Long before the onset of these symptoms there will have occurred impairment of the maximum power of the kidneys to form urine of high specific gravity, so that the patient, when deprived of fluids for twenty-four hours, forms urine of specific gravity less than 1.028 (Addis concentration test) during the last twelve hours. The decrease of maximum concentrating power occurs in most cases months or years before urea clearance falls to abnormal values. It is the earliest clinical measure of impaired renal nutrition. Later, as arteriolar occlusion extends to wider areas, renal blood flow decreases until increased filtration pressure no longer maintains urea clearance within normal levels. The fall of urea clearance is therefore more ominous than a decrease in the maximum urinary specific gravity, and, in malignant hypertension, the progress of the disease may be gaged from the rate at which urea clearance falls.

14. Goldring, W.; Ranges, H. A.; Chasis, H., and Smith, H. W.: Effective Renal Blood Flow and Functional Excretory Mass in Essential Hypertension, *J. Clin. Investigation* 17: 505, 1938.
15. Corcoran, A. C., and Page, I. H.: The Effects of Renin, Pitressin, and Pitressin and Atropine on Renal Blood Flow and Clearance, *Am. J. Physiol.* 126: 354, 1939.

NERVOUS SYSTEM

The worried, tense, complaining, fretful and resistant attitude of many patients suffering from essential hypertension is known to every physician. In many cases the onset of headaches is regularly associated with emotional stress. Nearly all show exaggerated responses of mood, mental content and blood pressure to the dissonances of daily life. In some the removal of obvious sources of conflict or direction toward readjustment of interests and better understanding of themselves and the world results in recession of symptoms and a decrease of arterial pressure. Many physicians are familiar with the fall of blood pressure and general improvement which may follow a trusting change to a "new doctor" as well as the rise of pressure and return of symptoms which will occur if the patient's full confidence has not been gained. In a few cases psychoanalysis has resulted in sustained improvement, and it is interesting to note that psychologically difficult phases of the analysis were sometimes associated with exacerbations of the symptoms.¹⁶ The important role of the mind in hypertension is therefore evident. It follows from this that such patients require the ungrudging time and emotional energy of a firm, consistent guide.

Somatic manifestations of mental origin other than increased arterial pressure may appear in hypertensive patients. Thus, a syndrome occurs, most commonly in young females, in which hypertension is associated with symptoms of cortical stimulation of the diencephalon.¹⁷ This state, the hypertensive diencephalic syndrome, is characterized by spontaneous or easily provoked blushing (over the face and neck), crying, laughter, salivation and tachycardia. These symptoms occur with little or no change of mood or mental content. The symptom complex is easily confused with hyperthyroidism and probably accounts for some of the apparent failures of thyroidectomy. The importance of this syndrome lies in the fact that the prognosis of such patients as to both life and freedom from organic disability is good.

Evidence of participation of the nervous system in hypertension may also be drawn from the effect of extensive operations on the sympathetic nervous system (anterior nerve root sections, total splanchnic resection, bilateral removal of thoracic and lumbar sympathetic chains). These operations, but especially the more recent types of sympathectomy, result in many cases in partial disappearance of hypertension and gratifying recession of symptoms and some prolongation of life.¹⁸

From the experimental side, it is interesting to observe that lasting hypertension may be produced by section of the inhibitory sinoaortic nerves¹⁹ or from the injection of kaolin into the cisterna magna²⁰ and

16. Alexander, F.: Psychoanalytic Study of a Case of Essential Hypertension, *Psychosom. Med.* 1: 139, 1940.

17. Page, I. H.: A Syndrome Simulating Diencephalic Stimulation Occurring in Patients with Essential Hypertension, *Am. J. M. Sc.* 100: 9, 1935.

18. Allen, E. V., and Adson, A. W.: Treatment of Hypertension: Medical versus Surgical, *Ann. Int. Med.* 14: 288, 1940. Page, I. H., and Heuer, G. J.: The Treatment of Essential and Malignant Hypertension by Anterior Nerve Root Section, *Arch. Int. Med.* 59: 245 (Feb.) 1937. Smithwick, R. H.: Surgical Intervention on Sympathetic Nervous System for Peripheral Vascular Disease, *Arch. Surg.* 40: 286 (Feb.) 1940.

19. Koch, E., and Mies, H.: Chronischer arterieller Hochdruck durch experimentelle Daueranastomose des Blutdruckzuegler, *Krankheitsforschung* 7: 241, 1939. Heymans, C., and Bouckaert, J.: Observations chez le chien en hypertension arterielle chronique et experimentale, *Compt. rend. Soc. de biol.* 106: 47.

20. Griffith, J. O.; Jeffers, W. A., and Lauer, M. A.: A Study of the Mechanism of Hypertension Following Intracisternal Kaolin Injection in Rats: Leukocyte Reaction and Effect of Lymphatic Absorption, *Am. J. Physiol.* 113: 285, 1935.

that complete sympathectomy with cardiac denervations lowers to normal the arterial pressure of dogs with such neurogenic hypertension.²¹ Equally interesting is the observation that extensive sympathectomy in dogs with renal hypertension has little immediate and no permanent effect on the level of arterial pressure.²² This failure of response in renal hypertension in dogs as compared with the response to sympathectomy in some human beings in whom hypertension seemed in part of renal origin may be attributed to the relatively lower level of psychogenic and neurogenic influence on the reactivity of the blood vessels in dogs.

THE ENDOCRINE SYSTEM

The relation of the endocrine system to the level of arterial pressure is known to the clinician from his knowledge of hypotension in Addison's disease and of hypertension in pituitary basophilism and certain adrenal carcinomas. This association of the pituitary and adrenal glands with arterial pressure is borne out experimentally in renal hypertension.

Removal of the hypophysis, the master gland, causes partial lowering toward normal of arterial pressure in experimental renal hypertension.²³ The same is true of bilateral adrenalectomy when adequate supportive doses of adrenal cortex extract and salt are given.²⁴ Removal of one adrenal and demedullation of the other does not alter the level of arterial pressure. Thyroidectomy, gonadectomy and pancreatectomy are similarly without effect.²⁵ The action of the pituitary gland seems to be exercised through its control of the adrenal cortex.

Clinically, neither hypophysectomy nor purposeful adrenalectomy has been practiced in hypertensive man. However, administration of desoxycorticosterone to patients suffering from the functional adrenalectomy of Addison's disease may so increase the reactivity of the vascular system that blood pressure may increase to hypertensive levels.²⁶ Thyroidectomy and gonadectomy are apparently without effect on hypertension in human beings.

Clinical and experimental observation therefore parallel and complement each other. It may be concluded that the adrenal cortex, although it may not itself participate in the mechanism which raises arterial pressure, serves at least to maintain the vascular tree in a reactive state to the stimulus which provokes hypertension. A similar generalization may apply to the role of the nervous system.

21. Freeman, N. E.: Hypertension from Increased Intracranial Pressure, in *Blood, Heart, and Circulation*, p. 282.

22. Freeman, N. E., and Page, I. H.: Hypertension Produced by Constriction of the Renal Artery in Sympathectomized Dogs, *Am. Heart J.* 14: 405, 1937.

23. Page, I. H., and Sweet, J. E.: Extirpation of Pituitary Gland on Arterial Blood Pressure of Dogs with Experimental Hypertension, *Am. J. Physiol.* 120: 238, 1937.

24. Goldblatt, H.: Studies on Experimental Hypertension: V. The Pathogenesis of Experimental Hypertension Due to Renal Ischemia, *Ann. Int. Med.* 11: 69, 1937. Page, I. H.: The Effect of Bilateral Adrenalectomy on Arterial Blood Pressure of Dogs with Experimental Hypertension, *Am. J. Physiol.* 122: 352, 1938. Collins, D. A., and Wood, E. H.: Experimental Renal Hypertension and Adrenalectomy, *Am. J. Physiol.* 123: 224, 1938.

25. Glenn, F., and Lasher, E. P.: Effect of Total Thyroidectomy on Production and Maintenance of Experimental Hypertension, *Proc. Soc. Exper. Biol. & Med.* 38: 158, 1938. Katz, L. N.; Friedman, M.; Rodbard, S., and Weinstein, W.: Observation on the Genesis of Renal Hypertension, *Am. Heart J.* 17: 334, 1939. Page.²⁴

26. Ferrebee, J. W.; Ragan, C.; Atchley, D. W., and Loeb, R. F.: Desoxycorticosterone Esters: Certain Effects in the Treatment of Addison's Disease, *J. A. M. A.* 113: 1725 (Nov. 4) 1939. Soffer, L. J.; Engel, F. L., and Oppenheimer, B. S.: Treatment of Addison's Disease with Desoxycorticosterone Acetate, *ibid.* 115: 1860 (Nov. 30) 1940. Roth, G. M.; Robinson, F. J., and Wilder, R. M.: Changes of Systolic and Diastolic Blood Pressure and the Response of the Blood Pressure to the Cold Pressor Test in Patients with Addison's Disease—Giving Treatment with Desoxycorticosterone, *Proc. Centr. Soc. Clin. Research* 13: 9, 1940.

CORRELATION WITH THE HUMORAL PRESSOR SYSTEM

The components of the humoral pressor system were reviewed at the outset of this report. Their relation to the pathogenesis of hypertension may now be filled in.

Experimentally, renal hypertension due to constriction of the main renal arteries or to compression of the renal parenchyma in the scar of perinephritis occurs in "essential" and malignant phases. In the "essential phase" systolic and diastolic pressures are elevated, and cardiac and arteriolar hypertrophy and sclerosis develop with the passage of time. It is an important observation that sclerosis does not occur in the kidneys, which are protected from the increased arterial pressure by the clamp or rigid scar. Renal function as measured from the clearances of urea, creatinine, inulin, phenol red and diodrast may remain within normal limits.²⁷

Malignant hypertension in which arteriolar necrosis results in retinal hemorrhages, papilledema, exudates and detachment, cardiac irregularities, renal failure and gastrointestinal bleeding may supervene.²⁸

The renin content of renal venous blood is increased in both essential and malignant phases, and the blood contains an excess of a vasoconstrictor which, like angiotonin, is inhibited by normal blood and potentiated in the presence of blood from animals previously nephrectomized.²⁹ When renal extracts containing the angiotonin inhibitor are given to experimentally hypertensive animals a reduction of arterial pressure usually begins within twelve to twenty-four hours of the administration of an effective dose, and the reduction of pressure may persist for several days after treatment has been discontinued.³⁰ The reduction of arterial pressure is associated with relaxation of the glomerular efferent arterioles and a resultant increase of renal blood flow and decrease of filtration pressure.³¹

Observations which are in many respects similar have been made in human beings. The blood of patients suffering from essential and malignant hypertension contains an excess of angiotonin-like vasoconstricting substance.²⁹ The renin content of renal venous blood has been measured in several instances, and it is interesting that renin was present.⁴ Arterial pressure is reduced and, in malignant hypertension, life is prolonged by administration of renal extracts which contain the angiotonin inhibitor. The antipressor action of the renal extracts is associated with relaxation of the constricted glomerular efferent arterioles and a resultant restoration toward normal of renal hemodynamics.²⁸

Experimental and clinical observations therefore suggest an important participation of the renal humoral pressor system in hypertension.

27. Corcoran, A. C., and Page, I. H.: Observations on the Relation of Experimental Hypertension to Renal Clearance and Renal Ischemia, *Am. J. Physiol.* 123: 43, 1938.

28. Goldblatt, H., and Kahn, J. R.: Studies on Experimental Hypertension: XIII. Experimental Observations on the Malignant Phase of Essential Hypertension; The Production of Intrarenal and Extrarenal Arteriolar Necrosis and Necrotizing Arteriolitis, in *Blood, Heart, and Circulation*.

29. Page, I. H.: The Vasoconstrictor Action of Plasma from Hypertensive Patients and Dogs, *J. Exper. Med.* 72: 301, 1940.

30. Page, I. H.; Helmer, O. M.; Kohlstaedt, K. G.; Fouts, P. J.; Kempf, G. F., and Corcoran, A. C.: Substances in Kidney and Muscle Eliciting Prolonged Reduction of Blood Pressure in Human and Experimental Hypertension, *Proc. Soc. Exper. Biol. & Med.* 43: 722, 1940. Harrison, Grollman and Williams.²⁹ Williams, Grollman and Harrison.³¹ Page.³¹

31. Corcoran, A. C., and Page, I. H.: The Effect on Renal Function of Extracts Which Lower Arterial Blood Pressure in Patients with Essential and Malignant Hypertension and in Dogs with Experimental Hypertension, *Proc. Centr. Soc. Clin. Research* 13: 38, 1940.

SUMMARY

Angiotonin or renin plus activator when injected into animals produce those effects which have been shown to characterize arterial hypertension in man, namely cardiac augmentation, arteriolar constriction and constriction of the efferent arterioles of the kidneys. This suggests the possibility that angiotonin is involved in the pathogenesis of essential and malignant hypertension in man.

The endocrine system, notably the adrenal cortex and hypophysis, appear to participate indirectly in that their secretions maintain the blood vessels and heart in a state receptive to hypertensive stimuli. The nervous system may play a similar part, especially in some types of hypertension in man, in which the high state of nervous organization may even make it a prepotent factor.

The clinical picture and course of each case of hypertension is therefore probably a composite of the degree and kind of renal, endocrine and nervous participation.

CLINICAL SYMPTOMS ASSOCIATED WITH THE SO-CALLED NON- PATHOGENIC AMEBA

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It is our purpose in this paper to present our clinical observations over a period of five years on 406 patients harboring one or more of the five forms of human intestinal ameba. These patients represent a cross section of the types of cases and complaints usually encountered in a gastrointestinal clinic. They were all given antiamebic treatment and the results are here recorded. This study is also intended to emphasize:

(a) the lack of uniformity in the observations made by various workers¹ in this field;

(b) the greater incidence of all types of intestinal ameba in man than is generally recognized;

(c) the responsibility of protozoa other than *Endamoeba histolytica* for the symptoms produced;

(d) the advisability of classifying all forms of ameba as potential pathogens, since they probably are capable of producing, to a moderate degree, many of the same symptoms produced by *E. histolytica*.

(e) that active pseudopodial amebas, in the absence of cysts, are in the average laboratories frequently mistaken for *E. histolytica*² and treated as such, thus detracting from the importance of the other four protozoa as symptom producers (pathogens).

Surveys have shown that protozoa are the most prevalent of all human parasites. It has been estimated that more than thirty million people³ in the United

States are infected with one or more of these organisms. Of these people from 2.5 to 10 per cent harbor *E. histolytica*, from 15 to 31 per cent *Endamoeba coli*, from 10 to 37.7 per cent *Endolimax nana*, from 2 to 3.5 per cent *Iodamoeba bütschlii* and from 2 to 4 per cent *Dientamoeba fragilis*.⁴ It has been generally accepted that only *E. histolytica* is pathogenic to human beings, while the other four forms of intestinal ameba are nonpathogenic. This opinion was no doubt fostered principally by the experimental work of Walker and Sellards,⁵ in Manila in 1913, who reported results of feeding experiments on 40 volunteers. One half of these subjects were fed cysts of *E. histolytica*, and of these 18 became parasitized and in 4 diarrhea developed. The other half were fed cysts of *E. coli*, and of these 17 became parasitized and in none did diarrhea develop. Musgrave⁶ seriously questioned the logic of the experiments and considered the results inconclusive.

Notwithstanding these experimental results in man and animals, which conclude that *E. coli* is not pathogenic, there have appeared in the literature records of clinical observations of symptoms caused by these organisms. In 1879 Grassi⁷ reported the finding of *E. coli* in patients suffering from diarrhea. In 1904 and again in 1926 Musgrave⁶ declared that the presence of ameba in the colon should be regarded as potentially dangerous from the clinical standpoint. In 1921 Kofoid⁸ and Swezy described a new species of ameba, which they called *Councilmanila laffeyi*, and stated that it was present in 10 per cent of all persons. They claimed that it may produce symptoms of colitis of similar character and of equal severity to that seen in any case of chronic amebiasis due to *E. histolytica* in the temperate zone. Furthermore, they were able to relieve patients harboring this organism with antiamebic therapy. In 1925 Hall and Reed⁹ described the symptoms produced by the *Councilmanila* type *E. coli*. From the results of the treatment they concluded that *E. coli* was potentially pathogenic.

In 1930 Lynch¹⁰ asserted that the pathogenicity of *Councilmanila laffeyi* was still under suspicion. Stabler proved conclusively in 1938 that *Councilmanila laffeyi* and *E. coli* were identical organisms. To us these observations were of great significance, not because of the identification of the *Councilmanila laffeyi* as one of the forms of *E. coli*, but because they suggested the fact that *E. coli* could produce symptoms. In 1926 Brown¹¹ described a number of cases of dysentery in which he found either *E. coli* or *Endolimax nana*. At that time he presented sound theoretical reasons for their causal relationship. Among other writers claiming that these two organisms were pathogenic to man

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1. Craig, C. F.: The Amebiasis Problem. Proc. Staff Meet. Mayo Clin. 7: 326 (June 1) 1932. DeYoung,²⁹ Dobell and O'Connor,²¹ Meyer and Johnstone.¹³ Kellogg and Scott.²⁰

2. Kantor, J. L.: Diarrhea. Am. J. Digest. Dis. & Nutrition 2: 1 (March) 1935. Stabler, R. M.: An Extended Study of Variations in a Single Race of a Coliclike Ameba and Its Bearing on Specificity of *Councilmanila laffeyi*. Am. J. Hyg. 16: 1 (July) 1932. Hegner, Robert; Johnson, C. M., and Stabler, R. M.: Host-Parasite Relations in Experimental Amebiasis in Monkeys in Panama. Am. J. Hyg. 15: 394 (March) 1932. DeYoung.²⁹ Kellogg and Scott.²⁰

3. Lynch, K. M.: Effects of Protozoa. Proc. Internat. Assemb. Interstate Post-Grad. M. A. North America (1928), 1929, p. 377.

4. Byrd, E. E.: On the Incidence of Intestinal Parasites in Five Hundred and Thirty-Seven Individuals on the Relief Rolls in the City of Athens, Georgia. Am. J. Trop. Med. 16: 39 (Jan.) 1936. Hegner, Robert: Minute Animal Parasites of Man, Scient. Monthly 30: 241 (March) 1930. Reed, A. C.: Clinical Amebiasis in Relation to Public Health. Am. J. Pub. Health 25: 396 (April) 1935. Naus, R. W., and Salfinger, M. H.: Amebic and Other Intestinal Protozoan Infestations in Representative Groups of New York City, ibid. 25: 7 (July) 1935. Kmeza, J. M.: The Incidence of Human Intestinal Parasite Infections Among Patients in a State Institution of Indiana. Am. J. Trop. Med. 19: 515 (Nov.) 1939. Wenrich, Stabler and Arnett.¹⁹

5. Walker, E. L., and Sellards, A. W.: Experimental Entamebic Dysentery, Philippine J. Sc. 8: 253, 1913; cited by Craig,²² pp. 8 and 181.

6. Musgrave, W. E.: Clinical Study of Amebiasis. Am. J. Trop. Med. 11: 469 (Nov.) 1931.

7. Grassi, B., cited by Craig.²²

8. Kofoid, C. A.: A Parasite Ameba of Human Intestines. Univ. California Publ. Zool. 20: 169, 1921.

9. Hall, J. H., and Reed, A. C.: *Endamoeba coli*: A Clinical Study. J. A. M. A. 84: 1914 (June 20) 1925.

10. Lynch, K. M.: Protozoan Parasitism of the Alimentary Tract. New York, The Macmillan Company, 1930, p. 101.

11. Brown, P. W.: Nature, Incidence and Treatment of *Endamoeba coli*. J. A. M. A. 86: 457 (Feb. 13) 1926.

may be mentioned Orticoni and Gazzola¹² in 1922. Rankin, Bergen and Buie¹³ concluded from their clinical study in 1934 that *E. coli* and *Endolimax nana* should be considered pathogenic when found in patients with gastrointestinal symptoms. Another ameba reported as capable of producing symptoms was *Dientamoeba fragilis*. Reports by Robertson,¹⁴ Thomson and Robertson,¹⁵ Hakansson¹⁶ and Wenrich¹⁷ also suggest its pathogenicity.

RECOGNITION OF AMEBA

For complete details on the various forms of amebas, the reader is referred to any accepted textbook on clinical parasitology. Craig and others¹⁸ have frequently drawn attention to the fact that at the present time there are but few laboratory technicians trained in this difficult phase of parasitology. It is the opinion of most workers that the identification of the cyst yields more reliable results than identification of the trophozoite. Many laboratories employ only the wet saline smear and stain with iodine solution as the simplest and most practical method.¹⁹ There are, however, many workers who rely entirely on the iron hematoxylin stain. It is sometimes difficult to differentiate the fresh active pseudopodial trophozoite of

TABLE 1.—*Spastic Irritable Colons Seen Through Sigmoidoscope*

Types of Ameba	Cases	Number of Spastic Colons	Per Cent
<i>E. histolytica</i> alone.....	43	21	48.8
Hist. with other amebas.....	52	32	61.5
<i>Endolimax nana</i> alone.....	143	63	44.0
Nana with other amebas.....	41	35	85.0
<i>E. coli</i> alone.....	99	36	36.3
<i>Coli</i> with other amebas.....	40	40	100.0
<i>Iodamoeba bütschlii</i> alone.....	0	0	....
<i>Iodamoeba bütschlii</i> with other amebas...	8	2	25.0
<i>Dientamoeba fragilis</i> alone.....	4	1	25.0
<i>D. fragilis</i> with other amebas.....	1	1	100.0

E. coli or *Endolimax nana* from *E. histolytica* as regards motility, ingestion of red blood cells,²⁰ ectoplasm, nucleus and the like. Many believe it a safe rule to regard as *E. histolytica*²¹ any ameba in the feces of man which contains red blood cells. However, since it is admitted that *E. coli*²² and *Endolimax nana*²³ may also ingest red blood cells, it is unfortunately impossible to determine the number of patients who, under such mistaken diagnoses, have been treated for *E. histolytica*. Furthermore the precystic amebas

of *E. histolytica* and *E. coli* are virtually indistinguishable from one another, even to the most expert observers.²⁴ When only trophozoites of ameba are found, some suggest waiting for the development of cysts²⁵ before making a diagnosis. This does not apply to *Dientamoeba fragilis*, for which no cyst has been described.

PATHOLOGY

Faust states that in the majority of cases of heavily infected persons in regions in which the incidence of *E. histolytica* infection is high the organism is not a tissue parasite²⁶ but a commensal and that *E. histolytica* did not always produce gross lesions in man or in all species of monkeys. On the other hand, Craig²⁵ is

TABLE 2.—Control Study: Ameba-Free Patients Treated with Carbarsone: Three Negative Stools

Total Number	Improved	Not Improved
28	4	24

under the impression that all carriers of *E. histolytica* show some evidence of tissue invasion. He reviewed reports of autopsies on groups of men and monkeys in which colonic symptoms were not found but there were amebas in the feces. He found ulcerative lesions in the cecum of all of them and concluded that there is no such thing as a healthy carrier of *E. histolytica*. The autopsies on the monkeys were done after an acute experiment. The autopsies on human subjects were performed in the tropical zone. However, one cannot accurately compare the autopsies performed in the tropics with those performed in the temperate zone. David Meranze, pathologist at the Mount Sinai Hospital, has performed more than one thousand five hundred autopsies in the past ten years. He was rarely able to demonstrate gross lesions of the cecum which could be called amebic ulcers. Nevertheless, if one were to accept Craig's analysis, at least 5 per cent, or 75 cases, should have been observed.

TABLE 3.—*Outstanding Symptoms Noted in Patients with All Forms of Ameba*

Symptoms	Number of Cases	Per Cent
Tiredness.....	258	63.5
" "	184	45.3
" "	207	50.9
" "	183	45.0
" "	67	16.5
Belching.....	156	38.4
Bloated.....	179	41.0
Palpitations.....	86	21.1
Abdominal discomfort.....	163	40.1

Craig²⁵ found the strongest positive results with his complement fixation test in symptomless carriers. In contrast, Sapero²⁷ reported that almost 50 per cent of *E. histolytica* carriers had symptoms directly or indirectly attributable to the organism. Since the complement fixation test is evidence of a systemic reaction and since others²⁸ have also shown that other forms of ameba are capable of producing symptoms mildly

24. Dobell, Clifford, and O'Connor, F. W.: The Intestinal Protozoa of Man, London, J. Bale, Sons & Danielsson, 1921, p. 29.

25. Craig, C. F.: Amebiasis and Amebic Dysentery. Springfield, Ill., Charles C. Thomas Publisher, 1934.

26. Faust, E. C.: Incidence and Significance of Infestation with *Entamoeba Histolytica* in New Orleans and American Tropics, *Am. J. Trop. Med.* **11**: 231 (May) 1931. Meleney and Fryc.²²

27. Sapero, J. J.: Clinical Studies in Non-Dysenteric Intestinal Amoebiasis. *Am. J. Trop. Med.* **19**: 497 (Nov.) 1939.

28. Musgrave.⁶ Hall and Reed.⁹ Oiticima and Gazzola.¹² Karlen,
Bergen and Buic.¹³

12. Orticoni, A., and Gazzola, M.: Entérite dysentérique par *Amoeba coli*, Presse méd. **30**: 1052 (Dec. 6) 1922.

13. Rankin, F. W.; Barger, J. A., and Buie, L. A.: Colon, Rectum and Anus, Philadelphia, W. B. Saunders Company, 1932, p. 308.

14. Robertson, A.: Case of Human Infection with *Dientameba Fragilis*, *Jepps & Dobell* 1917, *J. Trop. Med.* **26**: 243 (July 16) 1923.

15. Thomson, J. G., and Robertson, A. L.: *Dientameba Fragilis*, J. Trop. Med. **26**: 135 (May) 1923.

16. Hakansson, E. G.: *Dientameba Fragilis*: A Cause of Illness. *Am. J. Trop. Med.* 16:175 (March) 1936.

11. Report of Unusual Morphology in One Case with Suggestions as to

11. Report of Unusual Morphology in One Case with Suggestions as to Pathogenicity, *J. Parasitol.* **23**:183 (April) 1937.

18. Meyer, K. F., and Johnstone, H. G.: Laboratory Diagnosis of Amebiasis, *Am. J. Pub. Health* **25**: 405 (April) 1935. Magath, T. B.: The Laboratory Diagnosis of Amebiasis, *J. A. M. A.* **103**: 1218 (Oct.) 1934.

19. Wenrich, D. H., Stabler, R. M., and Arnett, J. H.: Endameba histolytica and Other Intestinal Protozoa in 1,060 College Freshmen, *Am. J. Trop. Med.* 15: 331 (May) 1935.

20. Kellogg, W. H., and Scott, E. A.: The Laboratory Diagnosis of Ameliasis, *Am. J. Pub. Health* **27**:813 (Aug.) 1937. Wenrich, Stabler and Arnett.¹⁹

21. Wenyon and O'Connor, cited by Lynch, K. M.: Protozoan Parasitism of the Alimentary Tract, New York, Macmillan Company, 1930, p. 97. Craig.²²

22. Tyzzer, E. E., and Geiman, Q. M.: Ingestion of Red Blood Cells by *E. Coli* and Its Significance in Diagnosis, *Am. J. Hyg.* **28**: 271 (Sept.) 1938.

23. Meleney, N. E., and Frye, W. W.: Practical Value and Significance of the Complement-Fixation Reaction in Amebiasis. *Am. J. Pub. Health* 27: 505 (May) 1937.

similar to those produced by *E. histolytica*, is one not justified in assuming that they may also produce a systemic reaction? If this is so, then one may hope some day to have a complement fixation test for them. Almost all our patients were examined with a sigmoidoscope and 109 of them showed a spastic sigmoid with a dry thickened hyperemic mucosa (table 1). In spite of the fact that a dry, spastic, irritable colon

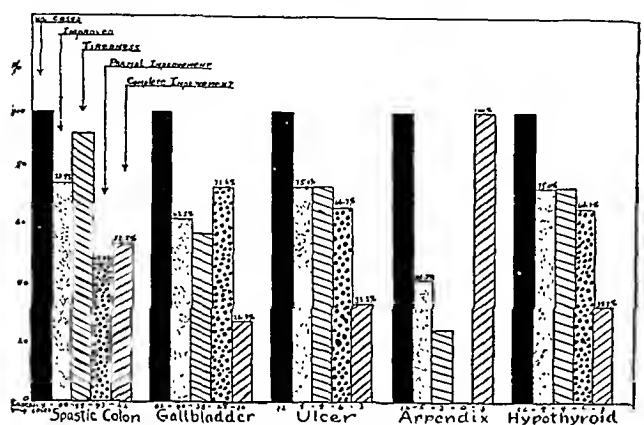


Chart 1.—Tiredness associated with selective diseases.

might be attributed to any one of a great number of causes, the marked improvement demonstrated sigmoidoscopically in so many of these cases following antiamebic therapy suggested that pathologically and clinically the protozoa may have been responsible for the inflammatory reaction.

METHOD OF STUDIES

Since we were planning an evaluation of the clinical improvement resulting from specific treatment, it became obvious that no claim of complete relief of symptoms would be possible in cases of complicated chronic sinusitis, cholecystitis, peptic ulcer, ulcerative colitis and the like. It was therefore necessary to devise some simple mathematical formula for "subtraction of symptoms relieved" from the total number of symptoms present. Symptoms persisting after adequate therapy were then interpreted as due to complicating conditions. This formula will be referred to as the "rule of subtraction."

Our results with antiamebic therapy in these cases were so striking that it was deemed of importance to determine the tonic versus the specific effect of the arsenic used. It was also of interest to ascertain what part suggestion played in the results obtained. Almost all the patients were given 3¾ grains (0.25 Gm.) of carbarsone (para-carbamido-phenyl-arsonic acid; arsenic content from 28.1 to 28.8 per cent) twice daily for ten days. A small group of patients with ameba in their stools were given solution of potassium arsenite in the usual therapeutic doses for a period of ten days, and the effects were noted. While under treatment they also were placed on the same diet as that prescribed for our active cases. Disappearance of symptoms or of amebas was not recorded in any case. For practical purposes we set a limit of three negative stools as evidence of the absence of amebas. However, like other workers,²⁹ we have seen cases in which as many as 10 or more specimens were examined before protozoa

were found. There are numerous reasons to account for this difficulty, but space does not permit their discussion.

A course of carbarsone was administered under the same conditions to another group of patients not infected with amebas. Of 28 patients in this group, 24 showed no relief of symptoms and 4 were improved (table 2). Whereas Paulson³⁰ is somewhat inclined to attribute the improvement in his cases to the tonic effect of the arsenic, we feel equally justified in assuming that the improvement was due to the presence of amebas which we failed to find. The effects of the specific therapy were usually manifest in from three to five days, or before the first course of treatment was completed. Admitting the absence of deliberate psychic influence, the tonic, nonspecific effect of arsenic would not usually manifest itself in so short a time. Furthermore, it does not seem possible that almost 50 per cent of these results should be due to suggestion.

SYMPTOMATOLOGY

Amebiasis is defined by Musgrave⁶ as any pathologic condition caused wholly or in part by protozoa of the genus *Endamoeba*. Amebiasis per se can be responsible for many symptoms associated directly or indirectly with the colon. Many of our patients had coexisting diseases (table 3) the symptoms of which frequently distracted attention from the symptoms due to the amebic infection. In order to evaluate properly which of the several symptoms were due to one or the other disease, the problem was approached in the fairest possible manner. For this purpose it was considered important first to eradicate the amebas in all cases of multiple infections. A careful record was kept of the symptoms which disappeared during and after the treatment. Those symptoms which persisted after the treatment was given were interpreted as being due to the accompanying infection. Paulson³⁰ believes that the only way that the protozoal symptom relationship can be evaluated is after disappearance of all symptoms. It is generally known that diseases of the colon may mimic some of the diseases of the upper part of the abdomen, such as ulcer or diseases of the gallbladder or kidneys.

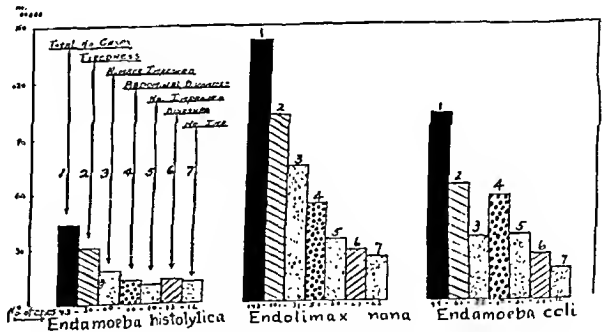


Chart 2.—Outstanding symptoms associated with *Endamoeba histolytica*, *Endolimax nana* and *Endamoeba coli*.

The patients here considered were never really seriously ill but suffered symptoms of only mild or moderate character. As a rule they are unable to date the onset of the illness. The symptoms, although annoying, seem vague and unimportant, so that frequently no medical attention is sought. There may be slight indigestion, a fleeting abdominal cramp or gaseous

29. DeYoung, Willard: Sources of Error in the Laboratory Diagnosis of Amebiasis, *J. Lab. & Clin. Med.* 21: 1249 (Aug.) 1936. Meyer and Johnstone.¹³ Magath.¹⁵

30. Paulson, Moses and Andrews, Justin: The Role of Symptoms and Signs in Amebiasis, *Ann. Int. Med.* 12: 64 (July) 1939.

distress most commonly located below the navel. The symptoms may be confined to the lower right quadrant and be mistaken for appendicitis. The patient may feel tired on arising as from inadequate rest in spite of from eight to ten hours of sound sleep and may seem unable to get started until about 11 a. m. and by late afternoon is ready to lie down again. It is an effort for him to move but, once started, he gets along well enough. He is easily exhausted by the slightest exertion, has lost his "pep," does not feel like standing erect and does so only with an effort.

The stools may become altered, at times mushy or even watery, but more frequently there is constipation. Bowel elimination does not seem to relieve the abdominal discomfort entirely. The patient may suddenly experience a sense of well-being for several days or weeks and go on to complete recovery. This may be the result of a temporary or permanent immunity or because most of the protozoa have been washed out. He may remain well until they multiply again in sufficient numbers to produce symptoms. The presence of these organisms in the intestine may by their local effect or, if we may presume, their "toxic" effect, aggravate the coexisting diseases. They may also retard or prevent a normal response to the treatment of these diseases.

Hall and Reed⁹ suggest that patients with vague, minor or apparently functional symptoms who have been diagnosed as neurasthenic or neurotic should have their stools examined for protozoa. In a large number of such cases, in which examination revealed nothing but *E. coli*, good results were obtained from antiamebic therapy.

For a clear picture of etiology and symptom relationship, it was necessary to group apart those patients with one form of ameba from those with two or more forms (table 4). Of 406 patients with all forms of ameba 258, or 63.3 per cent, complained of feeling tired and 184, or 45 per cent, felt weak. Thus 70 per cent of all patients harboring *Endolimax nana* alone and 61.6 per cent of those harboring *E. coli* alone felt tired, as compared to 69.9 per cent of the patients with *E. histolytica*. Two hundred and seven patients complained of constipation, although this was not necessarily due to the presence of the amebas. A number of the patients were cured of their constipation which had developed with the onset of symptoms. Diarrhea or mushy stools were observed in 68 cases. In 23 of these *Endolimax nana* was the only form of ameba found, in 15 cases *E. coli* and in 13 cases *E. histolytica*, while in the remainder of the group two or more forms of ameba were present. One hundred and sixty-three patients complained of some abdominal discomfort. This is suggested as being due to the presence of the amebas by the simultaneous disappearance of the discomfort and of the amebas. The most common site of abdominal distress was below the navel, most frequently in the lower right quadrant. Twelve patients with these symptoms were given a tentative diagnosis of appendicitis. Those harboring two or more forms of ameba were interesting in that a greater number of them had symptoms possibly due to symbiosis. Thus 80 per cent of these complained of feeling tired and the like. In 12 cases, hypothyroidism was diagnosed because of marked asthenia, hypotension, increased cholesterol and low basal metabolic rate. Their response to thyroid medication was not commensurate, but in 9 cases removal of the protozoa produced from good to excellent results.

RESULTS

It was interesting to observe the results of treatment of patients with many symptoms and to estimate the numbers caused by amebas by using the "rule of subtraction." These results were based on observation and follow-up from one month to six years of 406 cases of all forms of intestinal ameba; 179 of these, or 44.1 per cent, improved following eradication of the protozoa. The most prevalent was *Endolimax nana*, which was encountered 184 times. It was found alone in 143 cases and in 41 cases together with other forms of ameba. Eighty, or 55.9 per cent, of cases with a

TABLE 4.—Symptoms and Signs Associated with Single and Mixed Types of Ameba

Number and Type of Amebas		Tiredness			Abdominal Discomfort			Diarrhea		
		Number of Cases	Number Improved	Per Cent Improved	Number of Cases	Number Improved	Per Cent Improved	Number of Cases	Number Improved	Per Cent Improved
E. histolytica alone	43	30	20	66.7	13	10	76.9	13	12	92.3
E. histolytica with other forms of ameba	52	41	27	65.8	36	24	66.7	17	4	23.5
Endolimax nana alone	143	101	71	70.2	51	34	66.7	27	23	85.3
Endolimax nana with other forms of ameba	41	32	22	68.7	25	15	60.0	10	10	100.0
Endamoeba coli alone	99	61	33	54.1	54	34	62.9	24	16	66.7
Endamoeba coli with other forms of ameba	73	59	41	69.5	45	30	66.7	21	16	76.1
Jodamoeba bütschlii alone	0	0	0	....	0	0	....	0	0	....
Jodamoeba bütschlii with other forms of ameba	8	4	3	75.0	2	2	100.0	3	1	33.3
Dientamoeba fragilis alone	4	4	4	100.0	1	1	100.0	1	1	100.0
Dientamoeba fragilis with other forms of ameba	1	1	1	100.0	0	0	0	0	0	....

TABLE 5.—Results of Antiamebic Therapy

Total Cases	Males	Per Cent	Females	Per Cent	Total Improved	Per Cent
406	160	39.4	246	60.6	179	44.1

single type of ameba showed some improvement, while in 20 per cent of this group the results were excellent. Second in importance from a numerical standpoint was *E. coli*. It was found in 172 cases, in 99 instances without other forms of ameba and in 73 with one or more of the other forms. Forty-five patients, or 45.3 per cent, showed some improvement.

Jodamoeba bütschlii was observed in 8 cases. It was never found alone, so that we were unable to evaluate its clinical importance. Furthermore, those patients in whom it was found did not show any more distinguishing symptoms than did the other three forms of ameba under consideration.

Some of our patients were found to have a recurrence of the ameba within six months to two years. It was difficult to determine whether it was due to inade-

quate treatment or to reinfection. We are inclined to believe that they were reinfected because this is apt to occur unless contacts are taken seriously and are thoroughly treated.

To summarize the treatment briefly: Patients were placed on a high protein, low carbohydrate, high vitamin diet.³¹ Most patients were given one or two courses of carbarsone. In several instances a course of vioform-Ciba and emetine hydrochloride was also given. It is remarkable to note the difficulty in finding cysts and trophozoites of ameba in these cases of mild involvement after the third day of treatment with carbarsone, and by the fifth day the protozoa had disappeared entirely. This was not usually observed when we started the treatment with emetine hydrochloride. Craig prefers to reserve the use of emetine hydrochloride for special cases and advises against its routine use.²⁵

REPORT OF CASES

CASE 1.—A white woman aged 62, the wife of a physician, suffered for four months with diarrhea and severe pains in the lower part of the abdomen. She was admitted to a hospital, where she was treated for diverticulitis. She was discharged as unimproved, after which cancerophobia with dysuria and frequency of urine developed. Six weeks later she was admitted to another hospital, where she was treated unsuccessfully for two weeks. When first seen in the office, sigmoidoscopic examination revealed a spastic sigmoid with an edematous and hyperemic mucosa. A smear from the sigmoid revealed many actively motile trophozoites and cysts of *E. coli*. Treatment was started immediately, and within five days she began to show signs of improvement. Within ten days she was clinically better, passing formed stools, and the acute hyperemia in the sigmoid had almost disappeared. She has remained well for the past six months.

CASE 2.—A white man aged 39 suffered for three weeks from violent cramps and ten to fifteen watery bowel movements daily. He did not respond to the usual diarrhea therapy given him elsewhere. On first examination, trophozoites of *E. coli* were recovered through the sigmoidoscope. The mucous membrane was hyperemic and edematous. Three days after antiamebic therapy was started, the diarrhea and cramps ceased. He was completely well in ten days, and his sigmoid appeared normal within three weeks.

CASE 3.—A white girl aged 16 years was seen in consultation with a surgeon because of acute pain in the lower right quadrant of the abdomen and fever. There was pain but no tenderness or muscle guarding in the lower right quadrant. Her father was being treated for infection with *E. coli*. As a contact with the same protozoa in the feces she did not receive antiamebic therapy because she was menstruating at the time. Treatment is usually withheld during the menses, because while a patient is on carbarsone therapy the urine should be watched for albumin, red blood cells and casts. The surgeon wanted to operate, but as the leukocyte count was normal, antiamebic therapy was permitted. This produced a rapid recovery. There has been no recurrence of the symptoms for the past three years.

CASE 4.—A white woman aged 35 for three and one-half months after an attack of grip continued to have an elevated temperature ranging between 99.1 and 100.5 F. She had occasional chills and was very tired and weak. All studies including cultures of blood and excretions, and roentgen examinations were negative except for *Dientamoeba fragilis* in the stool. She had many consultants who, when informed that *Dientamoeba fragilis* was present, unanimously stated that it could not produce symptoms. Every possible therapy was given including sulfanilamide, azosulfamide, quinine and blood transfusions, all without any change in her condition. The third day after antiamebic therapy was started her temperature dropped to normal. She has had no recurrence for the past twelve months.

CASE 5.—A white woman aged 35 had a cyst adenoma removed from the thyroid gland in January 1939. Her pre-operative basal metabolic rate was -7 and the postoperative -20 per cent. Before the operation she had complained of extreme tiredness and exhaustion. Thyroid and vitamins were given without any influence on the patient except to elevate the basal metabolic rate to -5 per cent. She summered at the seashore but failed to regain her strength. In October the study of her stools showed the presence of cysts of *Endolimax nana* with as many as from 20 to 30 per high power field. Five days after treatment was started the patient felt a sudden change for the better. On the tenth day she was in excellent condition. Two weeks later she did not feel as peppy and, although no protozoa were found in the stools, a second course of carbarsone was given. She responded in the usual time and has been feeling excellent since.

CASE 6.—A physician aged 40 suffered for ten weeks with discomfort in the lower right quadrant and shooting cramps across the upper part of the abdomen, followed by loose, explosive bowel movements. These attacks occurred about once a week, and except for being unusually tired he was well during the intervals. Stool specimens contained 1 or 2 cysts and trophozoites of *Endolimax nana*. Antiamebic therapy brought about complete relief of symptoms. He states that he feels as though he could now do twice as much work as before treatment.

COMMENT

Amebiasis represents a very important problem from the point of view of public health. About 35 per cent of the population in and about large cities are infected with one or more protozoa.²² This compares favorably with from 50 to 75 per cent²³ of the population in some small towns of the South. In the office and laboratories, where the time element is not a factor, the percentage increases with experience, the time spent and the number of specimens examined.¹⁹ It is estimated that about fifteen million or more persons have symptoms attributable to the parasitic effect of these forms of ameba. At this rate 44.1 per cent, or about thirteen million persons, may perhaps be benefited either in part or completely by their eradication. It has been suggested that this is not practical,²² yet the attempts to eradicate smallpox, typhoid, yellow fever, malaria and other diseases were no small undertaking. It has been shown that these amebas are capable of producing many symptoms mimicking functional and organic conditions. Antiamebic therapy was followed in 44.1 per cent of the cases by some expression of relief. If the patient would not express himself favorably then the presence of the ameba was assumed to be commensal.

The internist is often consulted because the patient complains of being weak or tired. Many diseases must be ruled out, but in the absence of symptoms suggesting some colonic disturbance how often does he think of protozoa? Protozoan infection is the most common and universal disease of man; it is the least understood of all human infections. It appears simple to the one who constantly sees and works with it. He recognizes the specific ameba and treats the condition. Clinically the patient may be cured of the infection and the symptoms which accompanied it. This has been demonstrated time and again by several observers,²³ but unfortunately they represent only a small minority group.

There still are many of the common diseases, such as colds or measles, for which Koch's postulate has never been fulfilled. We believe that the same may be true of the experiments with *E. coli*. We

31. Faust, E. C.: Amebiasis in Dogs, *Am. J. Trop. Med.* 12: 37 (Jan.) 1932.

32. Lynch: Protozoan Parasitism of the Alimentary Tract, p. 26.

are inclined to believe that *E. coli*, *Endolimax nana* and *Dientamoeba fragilis* may produce symptoms as debilitating as a cold except that the symptoms are usually of a chronic nature. Nevertheless, not because of the absence of clinical conditions but based on experimental evidence only, these protozoa have been considered nonpathogenic. There are a great many circumstances which may influence an experiment, such as bacterial symbiosis, environment, virulence of the parasite and the susceptibility of the host. Musgrave⁶ gave many reasons for believing that the results of the feeding experiments to prove the "harmlessness" of *E. coli* were inconclusive. He states that diarrhea is not a necessary symptom and that the absence of clinical symptoms and ulcerations in the rectum is not necessarily evidence of the absence of ulceration higher up. The fact that amebas are present in the stools of patients without producing symptoms is not acceptable evidence of harmlessness, because patients have been observed for many years with *E. histolytica* in their stools without the production of symptoms. Nevertheless clinical colitis as severe as that observed with typical *E. histolytica* is occasionally seen when prolonged search reveals nothing but *E. coli*.²³ We have also seen and successfully treated with antiamebic therapy patients suffering with violent cramps and diarrhea in whom nothing but *E. coli* was found. We have likewise made similar observations on persons, groups and families harboring only *Endolimax nana*. Some clinicians²⁴ referring to these claims state that it represents merely a failure to find *E. histolytica*. We admit such a possibility but to not more than 10 per cent; otherwise, all protozoal surveys which have shown the existence of *E. histolytica* in our part of the country of from 5 to 15 per cent are wrong and should be closer to 50 per cent.

Although at the present time there exists a reluctance to accept the pathogenicity of *Endamoeba coli*, *Endolimax nana* and *Dientamoeba fragilis*, we hope that this report will stimulate further clinical and experimental investigations.

CONCLUSIONS

1. Stool specimens from 406 patients located in and about Philadelphia harbored one or more of the five forms of intestinal amebas. The most prevalent was *Endolimax nana*; *E. coli* was second.

2. These organisms, including *Dientamoeba fragilis*, had a causal relationship to their symptoms to the extent of 44.1 per cent.

3. The most common symptoms were constitutional; i. e., extreme tiredness and weakness. Of local nature were abdominal discomfort and diarrhea.

4. When a coexisting disease is active the results to be expected may be only partial; i. e., only those symptoms for which the ameba is responsible will disappear.

5. The response to carbarsone therapy is usually within three to five days. When no improvement is noted by the tenth day one may be fairly certain that the symptoms were not due to the presence of the ameba.

6. From a clinical point of view, all forms of ameba appear to have a pathogenic role. Furthermore, since they may represent a serious public health menace and problem, it is suggested that they should be accepted and treated as such until clinical evidence to the contrary can be proved.

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ABSTRACT OF DISCUSSION

DR. ASHER WINKELSTEIN, New York: Drs. Rothman and Epstein state that amebas other than *Endamoeba histolytica* may be pathogenic. It might be stated that this is debatable. There is as yet no conclusive evidence, clinical or pathologic, about it. They also say that the protozoal infection is common (35 per cent of the population). It must be admitted that it requires experts to find and differentiate the amebas, and more trained workers are certainly needed in this field. One fourth of their cases showed a spastic sigmoid with a dry hyperemic mucosa. I have had a large experience with sigmoidoscopy and do not consider this a pathologic finding. Their control group, 28 patients with symptoms without amebas, were treated with carbarsone without relief. This seems to answer the objection that arsenic itself may induce the tonic effect; however, the symptom complex described by them is so vague and broad that the small control group selected may have little significance. The symptom complex of asthenia and vague abdominal symptoms with constipation or diarrhea, while indefinite, is one of the most common symptom complexes seen in general practice. In my experience it is most often a neurosis. The finding of various amebas may have no more significance in this group than in any other group of the population even without symptoms. Their patients were treated with diet, vitamins and carbarsone. There was improvement in 44 per cent of the *Endolimax nana* and *Endamoeba coli* groups. It is surprising, if indeed there is a causal relationship between these amebas and the symptoms, that only half of the patients were helped. The authors conclude that some 35 per cent of the population is infected with these amebas and that this constitutes an important public health problem. Before accepting this conclusion, however, I feel it must first be proved that these amebas are pathogenic and, if so, that carbarsone cures these patients. Nevertheless, I wish to commend strongly the authors for bringing this important subject to the fore. It deserves a careful check-up study.

DR. HORACE W. SOPER, St. Louis: Early in my work I formulated a rule that every patient, no matter what his complaint, should receive a careful feces analysis and proctosigmoidoscopy. By employing this method I have been able to diagnose many cases of catarrhal colitis that might have been otherwise overlooked. By catarrhal colitis I mean that the feces will contain an excess of mucus, some of which will contain pus cells. In the majority of cases *Amoeba coli* or some of the flagellates are present. The proctoscopic picture usually shows a congestion of the mucous membrane of the rectum and pelvic colon. I reported a case of acute jejunitis about two years ago in the *American Journal of Digestive Diseases and Nutrition* that was definitely produced by *Trichomonas intestinalis*; the roentgenogram, the dilatation stopping abruptly at the ligament of Treitz, made the diagnosis of carcinoma. The abdomen was opened and an active jejunitis was found which responded to acetarsone therapy. I use acetarsone in preference to carbarsone because I consider it more toxic to the parasites and rarely toxic to the patient.

DR. PALMER DYSART, Phoenix, Ariz.: My experience is in accord with that of Drs. Rothman and Epstein, but, with Dr. Soper, I would add *Giardia*, *Chilomastix* and the *Trichomonas* flagellates to the pathogens which they presented. This is a remarkable survey of a condition that is difficult to follow. A group of us in Arizona, when presented with a case of vague gastrointestinal distress, of which the outstanding symptoms are fatigue, abdominal pain, gas and nausea, with or without relation to meals, and constipation more often than diarrhea, but also perhaps joint pains, neuritis and headaches, including migraine, in which one or more of these parasites are found, feel, like Drs. Rothman and Epstein, that we may have discovered the cause of their complaints. Then, as a proof satisfactory to us that these parasites are pathogenic, when we have cleared the intestinal tract of these organisms we expect the majority of these patients to be relieved of symptoms, the exact statistics for which I do not have at hand. I admit that we may find these parasites in some without apparent disease. These may be carriers. Authority has stated that these organisms are not pathogenic. It will require, therefore, much proof to controvert this belief.

²³ Musgrave, A. Hall and Reed, B. Brown, J. Rankin, Borgen and Buic, J.
²⁴ Brown, P.: Personal communication to the authors.

DR MOSES PAULSON, Baltimore: If the deductions of Drs. Rothman and Epstein are correct, we have just passed an important milestone in clinical protozoology. Unfortunately, they have failed to prove their contentions experimentally, statistically and clinically. Experimentally there are no available data acceptable to recognize protozoologists establishing amebas other than *Endamoeba histolytica* to be of pathologic import. Nor has any experimental evidence been offered here indicating otherwise. Statistically and clinically the following must be considered: Less than 50 per cent of the patients studied have been partially—not completely—relieved of symptoms on eradication of nonpathogenic amebas. At the same time a high vitamin, high protein, low carbohydrate diet (reduced residue-reduced stimulating routine) was given. Since many patients suffered from constipation it is fair to assume, although there is no specific mention of this by the authors, that they were treated also for this complaint. These two measures could account for much of the reported amelioration. The addition of adequate psychotherapy in cases in which there are similar complaints without structural change to account for them has in my experience resulted in a higher percentage of symptomatic relief either in the presence or in the absence of nonpathogenic protozoa. This is not to say that nonpathogenic protozoa should not be eradicated. A clinical entity or syndrome cannot be claimed unless the set of symptoms is completely eliminated with the eradication of the presumed etiologic agent in the vast majority of cases. The greater number of the authors' cases that failed to respond and many others that did so partially are to me the controls disproving the claim. The work that Andrews and I did about three years ago at the Johns Hopkins Hospital appears pertinent. The role of symptoms and signs in those with *Endamoeba histolytica* was studied. The number of cases was not large but the data appeared statistically valid, since no exceptions were encountered. Eliminating those having *Endamoeba histolytica* with diarrhea or dysentery, those manifesting *Endamoeba histolytica* with other digestive complaints for which no structural change could be held accountable were given carbarsone. For several weeks to a month or two many were completely relieved. Then all returned with their original complaints despite our inability to find amebas. When given antispasmodics, sedatives and hypnotics, all were completely relieved again. When these were discontinued the complaints recurred but still no amebas were to be found. Coincidentally with reinstitution of this therapy, complete relief was again obtained.

DR. ANTHONY J. BASSLER, New York: In the city of New York about 7 per cent of people have parasites and about 4 per cent have *Endamoeba histolytica*. I think it is much to be desired to remain on the side of the old teaching of parasitology of the past, to be conservative with regard to these cases unless the symptoms are characteristic of amebiasis as we understand it. I feel this way: We do get flagellate diarrheas and we, of course, have amebiasis, and we do have many problems, and when one comes to parasites found in a case, one is inclined to attach a significance to it, and, as Dr. Paulson has said, there are many things that can happen in the abdomen (I counted them up not long ago and they numbered two hundred and forty-two conditions that can happen in an abdomen). Most of these are functional and they are characterized by the protean symptoms expressed. Thus we should be careful not to give significance to something that really is not causative.

DR. MAURICE M. ROTHMAN, Philadelphia: In answer to Dr. Winkelstein's question as to why only one half of our patients were relieved, we believe that those 44.1 per cent relieved represent the number whose symptoms were attributable to the presence of the ameba. As to the proof of pathogenicity of these organisms, we are unable at the present time to offer direct experimental evidence. However, it is unfortunate that there also exist many other diseases for which we recognize a pathologic entity but for which Koch's postulates have never been completely satisfied. The common cold and many other diseases caused by a virus are such examples. Dr. Soper believes that flagellates are pathogenic. This is of interest because we, as well as other clinicians, are of a like opinion. Nevertheless many of these same men unhesitatingly

deny a similar role of pathogenicity for amebas other than *Endamoeba histolytica*. One of the reasons is based on the fact that they are not capable of invading tissue. Yet it is recognized that flagellates are not tissue invaders. Our observations are in accord with the experience of Dr. Palmer Dypart, who found constipation to be more common than diarrhea. In regard to Dr. Paulson's statement concerning the lack of experimental evidence, we prefer to regard the past experiments as a failure to reproduce the clinical picture rather than proof of the evidence of the absence of pathogenicity. Furthermore, there have never appeared in the literature reports of the failure to obtain some relief following specific treatment of patients with symptoms harboring the so-called nonpathogenic amebas. In this study we have found that diet, vitamins and the relief of constipation did not alleviate specific symptoms without the removal of the ameba. We believed it advantageous first to dispose of the protozoa. By so doing one can determine the exact symptoms due to the presence of the organisms. This is especially important in the presence of coexisting diseases. This has a direct bearing on Dr. Paulson's recent report on the treatment with carbarsone of 26 cases of *Endamoeba histolytica*. It is not unusual to obtain symptomatic relief with nonspecific therapy, but if those symptoms are due to the presence of the ameba they will recur. Most of our results were lasting, while those which were not were due either to inadequate treatment or to reinfection.

Clinical Notes, Suggestions and New Instruments

EXFOLIATIVE DERMATITIS AND DEATH DUE TO PHENOBARBITAL

DANIEL L. SEXTON, M.D.; GEORGE M. PIKE, M.D., AND
ARTHUR NIELSON, M.D., St. Louis

The toxic effects of phenobarbital, for the most part, are limited to a cutaneous eruption which subsides soon after the withdrawal of the drug. In an occasional case a severe constitutional reaction occurs in which exfoliative dermatitis is one of the manifestations.

The first case of exfoliative dermatitis reported due to phenobarbital was that by Hamilton, Geiger and Roth¹ in 1926. Although there was an exfoliation of all epidermal layers, recovery occurred after a prolonged illness.

Eleven cases of severe cutaneous eruption were reviewed by Poole,² another by Haubrich³ and two by Lancaster,⁴ in one of which there were marked urticarial wheals and the patient died five days after the rash appeared. This patient was being treated for a fracture and had received 85 grains (5.5 Gm.) of phenobarbital.

Autopsy reports on the subject are few. Bronchopneumonia has been reported in a majority of the cases, but otherwise the conditions found are inconstant. Brunsing⁵ recorded the death of a patient in whom severe systemic symptoms and large bullae developed. At autopsy there were no remarkable conditions seen.

At postmortem examination of a patient with nephritis who had received a preparation of theobromine and phenobarbital, which included 24 grains (1.5 Gm.) of phenobarbital over a period of eighteen days, Millard⁶ found renal damage and bronchopneumonia.

From the medical (Drs. Sexton and Pike) and the dermatologic (Dr. Nielson) service, Unit 11, St. Louis City Hospital.

1. Hamilton, E. S.; Geiger, C. W., and Roth, J. H.: Luminal Poisoning with Conjugational Residue, *Illinois M. J.* 49:344 (April) 1926.

2. Poole, A. K.: Drug Reactions from Barbitals and Phenobarbital, *Yale J. Biol. & Med.* 1:345 (July) 1929.

3. Haubrich, B. P.: Phenobarbital Poisoning, *New England J. Med.* 211:264 (Aug. 9) 1934.

4. Lancaster, A. H.: Luminal Dermatitis with Case Reports, *South. M. J.* 25:1142 (Nov.) 1932.

5. Brunsing, L. A.: Dermatitis Medicamentosa: Idiosyncrasy to Quinine, Phenolphthalein and Phenobarbital, *Proc. Staff. Meet., Mayo Clin.* 7:618 (Oct. 26) 1932.

6. Millard, R. J.: Three Cases of "Luminal" Poisoning, *M. J. Australia* 2:518 (Oct. 14) 1933.

Scarlett and MacNab⁷ record the history of a patient who received 19½ grains (1.26 Gm.) of phenobarbital over thirteen days. Twelve days after the drug was started the patient's temperature rose, and there occurred a macular rash which eventually developed into large, bullae, intense conjunctivitis and stomatitis. This patient died six days after the rash appeared. Toward the end the total nonprotein nitrogen was elevated. Autopsy showed evidence of encephalitis, for which the patient had originally been admitted and from which he had recovered clinically, and cloudy swelling of the kidneys and liver.

Switzer and Laymon⁸ reported two cases of severe cutaneous reactions following phenobarbital with one death after 1½ grains (0.1 Gm.) daily for three weeks. This patient had exfoliative dermatitis and at postmortem examination only bronchopneumonia and fatty changes in the liver, which may have been due to the gallstones present, were found.

Wile and Benson⁹ reported two cases of exfoliative dermatitis following phenobarbital with fatal outcome. One, a dentist aged 48 who had received a total of 44 grains (2.85 Gm.) of phenobarbital over a period of nineteen days, had universal exfoliative dermatitis. At postmortem examination were found dilatation of the right side of the heart, bronchopneumonia, acute bilateral purulent bronchitis and subendocardial fatty degeneration. The other patient, a man aged 45, had received a total of 42 grains (2.7 Gm.) of phenobarbital over fourteen days before a maculopapular rash developed. The rash became exfoliative and death occurred thirteen days after its first appearance. Changes found at autopsy included a bullous, ulcerative and exfoliative dermatitis, bilateral lobar pneumonia, acute diphtheritic laryngitis and esophagitis, acute passive congestion and degeneration of all parenchymatous organs.

Because of the few autopsy records available on this subject, the following report is made:

REPORT OF CASE

P. M., a white man aged 39, admitted to the St. Louis City Hospital Dec. 1, 1939, complained of epigastric pain and vomiting of three months' duration. He had had indigestion with belching and epigastric distress after meals for many years in varying degrees of severity, but this became so marked in the two weeks prior to entry that practically no food was retained. He stated that he had not taken any medication or drugs before entrance.

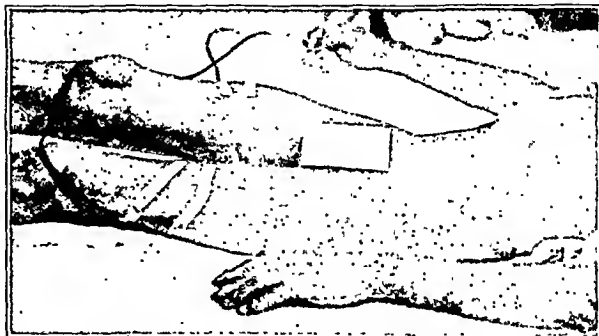
The patient was poorly nourished, almost emaciated, but was comfortable at the time of examination. Except for epigastric tenderness on deep palpation, examination revealed nothing abnormal. The oral temperature was 97.8 F., pulse rate 78, respiratory rate 18, blood pressure 123 systolic, 75 diastolic.

Urinalysis on admission showed no sugar or albumin, and microscopic examination of the sediment was negative. The hemoglobin content measured 12.5 Gm. (Sahl), red blood cells numbered 4,020,000 and white blood cells totaled 7,800. A differential count showed 2 per cent juveniles, 6 per cent stab cells, 54 per cent segmented forms, 33 per cent lymphocytes, 4 per cent monocytes and 1 per cent eosinophils. Analysis of gastric contents yielded normal amounts of free hydrochloric acid. The Kahn precipitation test gave negative results. Blood sugar was 55 mg. per hundred cubic centimeters (normal, from 70 to 95 mg.); nonprotein nitrogen was 14 mg. (normal, from 11 to 26 mg.). Stool examination showed no gross or occult blood.

The clinical diagnosis was peptic ulcer, and accordingly a first day Sippy diet was ordered. Three grains (0.2 Gm.) of phenobarbital was given on the night of admission. Because of vomiting, subcutaneous medication consisting of 1 grain (0.065 Gm.) of soluble phenobarbital three times daily and ¼ grain (0.4 mg.) of atropine sulfate three times daily was started the next day. The patient did very well on this regimen. On the eighth hospital day soluble phenobarbital and atropine were omitted, and 1½ grains of phenobarbital orally three times a day was ordered.

Improvement continued until the twelfth hospital day, when the patient complained of a feeling of general malaise and the previously normal temperature rose to 103 F. At this time he had no specific complaints and no eruption. On the following morning the temperature was 104 F. and the patient complained of sore throat and dysphagia. He was acutely ill with injected conjunctivas and excessive lacrimation. The skin was covered with a generalized eruption, consisting of discrete erythematous macular lesions. In the mouth were numerous vesicular lesions, some of which had ruptured and released a thin, milky fluid. There were moist rales throughout both lungs. The white cells numbered 16,600 with a shift of the left in the Schilling differential count. There was no eosinophilia. The urine showed no material changes from the examination on admission.

Up to this point the patient had received 21 grains (1.36 Gm.) of soluble phenobarbital subcutaneously and 21 grains of phenobarbital by mouth over a period of thirteen days. The drug was immediately discontinued and parenteral fluids were started. Dr. Joseph Grindon Sr. of the dermatology service saw the patient in consultation and made a diagnosis of dermatitis medicamentosa due to phenobarbital. Within twenty-four hours the cutaneous lesions progressed so rapidly that in many places they became confluent, involving large areas of skin, which soon began to exfoliate; the exfoliation is shown in the accompanying illustration. The patient became semicomatose, with a temperature ranging between 104 and 105 F., until his death on the morning of the sixteenth hospital day, three days after the appearance of the eruption.



Eruption as it appeared on second day after onset. Note areas of denudation over abdomen.

Autopsy was performed two hours after death. Over the skin of the entire body were numerous brownish red to pink areas in which the superficial layers of the skin were lost. To the edges of some of these lesions were attached large sheets of exfoliating grayish skin. These lesions were present on the ears, face, neck, chest, back, abdomen, scrotum, arms, legs and feet. The trunk showed the most generalized distribution. Some of these areas of exfoliation measured as much as 15 cm. in diameter. Many were confluent.

The right pleural cavity contained 300 cc. of straw colored fluid. The middle and lower lobes of the right lung and the lower lobe of the left lung were moderately firm but not typical of pneumonic consolidation. A hemorrhagic purulent exudate was seen in the secondary bronchi of both lower lobes. Microscopically the lung showed many alveoli filled with polymorphonuclear leukocytes, and in one section several small necrotic areas were seen. The epithelium of the esophagus was absent and in its place was a layer of fibrinopurulent exudate. The liver and kidneys were normal. No evidence of ulceration was found in the stomach or duodenum.

COMMENT

The potential danger of phenobarbital should be kept in mind. It would seem advisable to administer the drug first in small doses, increasing the dosage gradually until the patient's tolerance is established. Withdrawal of the drug at the first appearance of the rash is the safest procedure. Even then a severe constitutional reaction may occur, but for the most part a fatal outcome will be averted. The tolerance of phenobarbital depends on individual susceptibility.

University Club Building.

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8. Switzer, S. E. and Laymon, C. W.: Severe Cutaneous Reaction to the Barbiturates, *Minnesota Med.* 20: 92 (Feb.) 1937.
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Special Article

GLANDULAR PHYSIOLOGY AND THERAPY

MENSTRUATION

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This special article is published under the auspices of the Council on Pharmacy and Chemistry. It is one of a series which will be published in book form as the second edition of "Glandular Physiology and Therapy." The opinions expressed in this article are those of the author and do not necessarily represent the views of the Council.—ED.

In the human species, menstruation is the only overt manifestation of rhythm in the female reproductive system. In other primates there may be additional and even more obvious indications of cyclic changes. Corner^{1d} and Edgar Allen^{1c} have recently summarized the evidence that the rhythm is maintained by a delicate balance of endocrines. We are not dealing with "an all or none" phenomenon but with a balanced system of forces which changes as a whole when any one factor changes. The oscillations of the system may have a high amplitude or they may become almost imperceptible. The system is accordingly variable in its manifestations. This is generally conceded; the difference of opinion is largely a matter of the range of variability that is to be regarded as normal. Many clinicians are unwilling to regard a cycle as normal unless its primary purpose is achieved; i. e., unless a fertilizable egg is produced. The fundamental controlling mechanism is nevertheless the same whether the optimal conditions which result in ovulation are achieved or not. In other words, there may be bleedings at regular intervals which are clinically indistinguishable from menstruation although the ovary has not responded to the extent of producing a ripe egg.

Physiologic extravasations of blood are a unique feature of the mammalian uterus. Before a scientific treatment of abnormal "functional" bleedings is possible it will be necessary to analyze the mechanisms which control normal bleedings. The analysis requires controls that can be applied only in experiments with animals. The problem seems at present to be centering about the utero-ovarian vascular system, and some consideration of the vascular changes is definitely indicated in experiments with estrogen, progesterone and similar substances.^{1c}

In the human species and in certain monkeys three normal types of endometrial bleedings may be seen:^{2b}

1. Menstrual bleeding. This recurs at intervals of three to five weeks and is associated with rapid involution and some necrosis of the endometrium.

2. Implantation bleeding (placental sign of Long and Evans). This occurs soon after implantation of the ovum, in many mammals. In women and macaque monkeys it appears about four weeks after the last period,^{2a,c} and when it involves an external show of blood it may be indistinguishable clinically from menstruation. In such cases the onset of labor is a month earlier than expected from the history.

3. Preovulatory bleeding associated with hyperemia. This is the familiar estrous bleeding of the dog and cow; in primates it is the rather uncommon "intermenstrual" bleeding (mittelschmerz). It has been seen in the macaque at about the time of ovulation and after large doses of estrogen.^{1c}

The second and third types have received far less attention than they deserve.

The liberal definition of menstruation given here is justified by the finding that the ovaries and the uterus may present a very different appearance during successive periods in the same individual^{1c} and at the same stage in different individuals. In the macaque there have now been observed a large series of transitions from the maxima of the breeding season to the minima of summer. There may be extreme hyperplasia and hypertrophy of the uterus associated with an active corpus luteum in one cycle; occasionally it is impossible to tell from the endometrium whether or not ovulation has occurred. There are anovulatory cycles during which the endometrium grows more than in certain ovulatory cycles.^{1c} In such cases it is necessary to have serial sections of both ovaries to prove the absence of recent corpora lutea. In other words, ovulatory and anovulatory menstruation are not distinct types; cycles with much ovarian activity grade off imperceptibly into those with little. The "staircase phenomena" of Hartman^{2c} gave us the first clear evidence of this.

At present, anovulatory cycles appear to be rare in women whose periods are "regular."³ This may be due in part to the difficulty of demonstrating them. Usually it is necessary to have both ovaries removed early in a menstrual period which appeared as expected. Such cases are rare. Inspection of ovaries at operation and of fragments from endometrial biopsy specimens often lead to error, for the conditions in ovary and uterus may vary within wide limits, with transitions from ovulatory to anovulatory cycles, as the study of the macaque has abundantly shown.^{2d} There are few who can diagnose an active corpus luteum histologically. The incidence of anovulatory cycles will not be known until physicians have a sure sign of ovulation which can be readily applied to large groups of women for twelve or more consecutive cycles.

Hitherto knowledge of the sequence of events in the menstrual cycle has come from series of specimens arranged in an order that seemed logical to the investigator. Human ovaries have only occasionally been available, and it has been possible to exclude almost any given case as abnormal if the critic so desired. A large number of macaque uteri have now been studied, and one can say with assurance that the cyclic changes are fundamentally the same as in man.⁴ One can therefore accept the recent observations of Markcc^{1c} as applicable to human conditions with but little modification. He has launched a new attack on the cycle by observing living endometrium transplanted to the

From the Department of Anatomy, University of Chicago.

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3. Rock, J.; Bartlett, M. K., and Matson, D. D.: *Am. J. Obst. & Gynec.* **37**: 1 (Jan.) 1939.

4. Corner, Hartman and Bartelmez: Unpublished data.

anterior chamber of the eye in macaques. He could thus observe the same mucosa with a microscope day by day or minute by minute for many cycles in normal unanesthetized animals, and his experience has been extensive enough (432 menstrual cycles) so that he can speak with authority as to the essential features of the cycle. It is significant that the onset and duration of menstruation in these bits of endometrium coincide with the same events in the animal's uterus with its intact musculature. The observations agree with conditions observed in histologic sections, substantiating and extending them, but they do vastly more than this. They give one direct visual evidence of the actual sequence of events and the first satisfactory quantitative data on the same endometrium during a cycle and in different cycles. They exclude the nervous system as a significant factor in the control of the cycle. They furnish the basis for an analysis which includes all kinds of normal cycles. Markee calls it the "growth" rather than the "menstrual cycle." It may be subdivided as follows:

1. Postmenstrual phase of relative inactivity, which may vary in length from nothing to many days or even weeks.

2. Primary growth phase, which may or may not be associated with a growing follicle. The end of this phase is usually marked by a brief halt or even a regression in growth. The cause of this remains to be investigated.

3. Secondary growth phase, which reaches a maximum in the presence of an active corpus luteum. The endometrium may double in thickness, partly as a result of increasing edema.

4. Phase of involution. This is associated with a reduction in blood flow to the mucosa, and at the end there may be superficial congestion, leukocytosis and infiltration. The edema fluid is resorbed, and the involution may reach 60 per cent. Sooner or later there is persistent blanching of the surface due to constriction of the arteries which supply the surface.

5. Phase of bleeding. The constricted arteries open up, often one by one; almost at once there is extravasation, followed by bleeding from the surface and then by desquamation of the superficial zone.

6. Repair phase. This involves reestablishment of active circulation, rejuvenescence of the endometrium and restoration of the surface epithelium.

The vascular system of the endometrium plays a major role in this cycle. The peculiar coiled arteries are one of the most distinctive features of the primate endometrium. They pass with few or no branches in myometrium or basal mucosa to supply the superficial capillary bed⁵ and are "end arteries."⁶ At the beginning of the first growth period they are coiled in the mucosa basally. Capillaries pass out from them to the superficial reorganizing zone, which is rapidly increasing in thickness. The arterial channels gradually differentiate in this capillary bed and slowly approach the surface. Later the arteries grow more rapidly than the surrounding tissue, so that they become coiled throughout their length. Under the influence of the active corpus luteum they eventually differentiate as far as the surface epithelium.

The basal region of the endometrium has an independent supply of blood derived from small arteries and from anastomoses with the capillary bed of the myometrium. There is no sharp line of demarcation between this zone and that supplied by the coiled arteries. The drainage from the mucosa is by venules, which are predominantly radial, but with numerous anastomoses, which may enlarge into sinuses. Certain venules pass, without anastomoses, from the superficial to the deep veins of the endometrium. Lymphatics have been described, but their presence in the mucosa has not yet been proved.

Markee's^{1b,c} observations on transplants show that there may be much variability in a given endometrium even in successive ovulatory cycles. His descriptions provide the basis for the following résumé of a typical cycle.

During the first three weeks the coiled arteries alternately dilate and constrict, so that as one looks at the surface it slowly "blushes" and then "blanches," a cycle occupying one to one minute and a half. After the second growth phase is well under way the vascular rhythm is occasionally disturbed, and in general the color of the transplant becomes paler. Presently the blood almost stops flowing through the dilated superficial vessels. Leukocytes begin to migrate into the stroma; the transplant is turning blue and manifestly shrinking. There is a loss of water.⁷ With this involution, the tortuous arteries show buckling. These events herald the onset of menstruation. In the course of the next day one coiled artery after another clamps down, and for many seconds at a time not a single blood corpuscle moves in the superficial zone, although basally the blood is flowing freely. After several hours an artery here and there opens up, and almost at once blood pours out into the tissue from opened capillaries or arterioles. In the course of a few minutes a sub-epithelial hematoma develops, it soon ruptures, and dark blood slowly streams out over the surface. This blood does not clot. Necrosis sets in at the surface, and the ends of the coiled arteries are sealed by dead cells. Then fissures appear at the edges of blood-soaked areas; as they extend down into the tissue, small fragments are slowly loosened from the surface. An artery that has bled is not likely to bleed again during this flow, but if the animal is frightened or annoyed, the necrotic end may break and spout blood for minutes at a time. This blood promptly clots. Such conditions probably obtain in various metrorrhagias.⁸

At intervals during the next two days or so other arteries begin to bleed, and so the process is repeated, each time in a different region. By the third or fourth day the surface has become denuded and ragged; coiled arteries and glands project out from it, and veins are open. Slowly a little regurgitated blood oozes from an open vein for a period of many minutes. The wound surface looks clean, and most cells seem normal. Presently cells begin to migrate out in all directions from torn glands, and in two hours the surface epithelium is practically restored. During all the period of bleeding the circulation of blood has continued basally; now it is accelerated. Then the coiled arteries begin to develop capillary sprouts, which anastomose,

5. Daron, G. H.: *Am. J. Anat.* 58: 349 (March) 1936.
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8. von Mikulicz-Radecki, F.: *Zentralbl. f. Gynäk.* 53: 258 (Feb. 2) 1929.

and blood flows through them. The rejuvenation of the superficial zone is now under way, and a new growth cycle has begun.

THE MECHANISM OF MENSTRUATION⁹

It is not yet possible to enumerate all the hormonal factors concerned in the control of the menstrual cycle. The interactions of anterior hypophysis and ovary are essential^{10,11} but other endocrines may normally be involved. So far as the mechanism which brings about bleeding is concerned it would appear from what has been said that the question can be narrowed down to the factors which control the coiled arteries of the endometrium.

The hormone withdrawal hypotheses^{9a} are fundamentally similar to the corpus luteum failure hypothesis of R. Meyer. That is, they attribute the menstrual changes to the elimination of a hormone or hormonal complex. It is now possible to say that ovarian hormone withdrawal initiates the characteristic premenstrual and menstrual behavior of the coiled arteries.^{1c}

Various observations indicate that it is not the elimination of a specific hormone but an abrupt reduction in hormonal level which produces this type of bleeding. These data may be summarized as follows:

1. Hisaw^{9f} found that a reduction of 50 per cent in the amount of estrogen administered to a spayed macaque results in menstrual bleeding. This has been abundantly confirmed and elaborated.¹⁰ Markee^{1c} has clearly demonstrated the importance of an abrupt change.

2. The thresholds in these reactions are vague and variable although it has been shown that in a spayed animal a definite minimal amount of estrogen is necessary to maintain the endometrium in a condition that will permit withdrawal bleeding.¹¹

3. In keeping with this variability is the fact that various insults to the ovary such as unilateral ovariectomy or even resection may produce menstrual bleeding. Similarly a profound systemic disturbance such as transection of the spinal cord initiates it.¹² As the level of the transection plays a part, it may be that the nerve supply of the ovary is involved in the reaction.

4. Bleeding during the course of treatment with estrogen may perhaps involve periodic hormone reduction through changes in renal thresholds.¹³

5. The reaction is not specific for any one hormone; the effects of estrogen, progesterone and androgen withdrawal are similar.¹⁴

The objection has been raised that the estrogen titer in the circulating blood may be high premenstrually and during menstruation¹⁵ and the premenstrual fall in estrogen excretion does not necessarily militate against this. It is true that quantitative determinations

in the blood hormones are fraught with many uncertainties, and some authors discard the findings on this basis; but it is always possible that in these cases there was a premenstrual fall from a still higher level.

Other factors besides ovarian hormones are concerned in the production of menstrual bleeding.

Markee^{1c} showed that the effect of "estrogen deprivation" is essentially local. After spaying an animal which had transplants in both eyes, he administered estrogen, which brought about the typical vascular rhythm and endometrial growth. Then he inserted a crystal of estradiol into one eye and stopped the subcutaneous injections of estrogen. The transplants in the other eye began to shrink and in due time menstrual bleeding occurred there and in the uterus. But in the eye that had the crystal, growth continued, and no menstrual changes were to be seen. After the end of the experimental menstruation the injections of estrogen were resumed, and growth was seen in all transplants. When the crystal was removed, menstruation was induced only in the treated eye, while the estrogen level in the circulating blood was sufficient to maintain growth in the transplants of the other eye.

All this may mean that the bleeding mechanism involves something more than reduction in ovarian products and raises the question of other factors.

Markee^{1c} has presented evidence that as soon as regression has set in, the menstrual process is controlled within the endometrium itself. His hypothesis is that continued regression produces progressive buckling of the coiled arteries even in cycles with feeble growth. This retards the flow of blood superficially to such an extent that the mucosa is injured. As a result the tissue produces a vasoconstrictor to which the sphincters of the coiled arteries⁶ are highly susceptible. They clamp down, and the resulting stasis brings on menstruation.

It may be that the reduction in hormonal levels activates a specific bleeding mechanism. The hypophysis as the source of such a factor seems to be ruled out.¹¹ Markee^{1c} reported greater irregularity in the blush and blanch rhythm during the second growth period, and this supports the idea²⁰ that the same specific factor responsible for the rhythmic blanching also produces the protracted premenstrual blanching. In such a situation regression would be initiated when a definite threshold was reached. So far the hunt for a specific vasoconstrictor has failed. Brewer¹⁷ presented evidence for a general vascular spasm premenstrually and suggested a substance resembling epinephrine as the agent. He attributed the premenstrual and menstrual changes to the gradual increase of such a vasoconstrictor in the blood.¹⁸ Such a hypothesis assumes that in pregnancy the activated corpus luteum antagonizes the vasoconstrictor to such an extent that extravasation is confined to the region already damaged by the invading ovum.

Why should there be a periodic weakening of the superficial endometrium and an outpouring of blood? The most satisfactory explanation is that the process is an adaptation to provide nourishment and a foothold for the fertilized ovum during the period when the placenta is being established.¹⁹

9. The mechanism of menstruation is discussed at length by (a) Allen, Edgar, Hisaw, F. L., and Gardner, W. V., in Allen, Edgar, Danforth, C. H., and Doisy, E. A.: *Sex and Internal Secretions*, Baltimore, Williams & Wilkins Company, 1939. (b) Brewer, J. I.: *Am. J. Anat.* 61: 429 (Sept.) 1937. (c) Corner.^{3a} (d) Engle, E. T., and Smith, P. E.: *Endocrinology* 25: 1 (July) 1939. (e) Hartman.^{2b} (f) Hisaw, F. L.: *Am. J. Obst. & Gynec.* 29: 638 (May) 1935. (g) Allen.^{1c} (h) Hamblen, E. C.: *Endocrine Gynecology*, Springfield, Ill., Charles C. Thomas, Publisher, 1939.

10. (a) Corner, G. W.: *Am. J. Physiol.* 113: 238 (Sept.) 1935. (b) Engle, E. T.: *Am. J. Obst. & Gynec.* 38: 600 (Oct.) 1939. (c) Allen, Hisaw and Gardner.^{2a} (d) Corner.^{3a} (e) Engle and Smith.^{2d} (f) Hisaw.^{9f}

11. Engle, E. T.: *Am. J. Obst. & Gynec.* 38: 600 (Oct.) 1939.
12. Van Wagenen, G.: *Am. J. Physiol.* 105: 473 Aug. 1933.
13. Zuckerman, S.: *Proc. Zool. Soc. London*, s. B 123: 441, 1937.
14. Fluhmann, C. F.: *Menstrual Disorders: Pathology, Diagnosis and Treatment*, Philadelphia, W. B. Saunders Company, 1939. Corner.^{3a} Engle.^{10b} Allen.^{2a}
15. Fluhmann, C. F.: *Endocrinology* 20: 318 (May) 1936. Fluhmann.¹⁴

16. Bartelmez, G. W.: *Contrib. Embryol.* 24: 141, 1933.

17. Brewer, J. I.: *Am. J. Obst. & Gynec.* 36: 597 (Oct.) 1938.

18. Brewer, J. I.: *The Menstrual Cycle*, in Blumer, George: *The Practitioner's Library of Medicine and Surgery*, New York, D. Appleton-Century Company Inc., 1940.

19. Bartelmez, G. W.: *Physiol. Rev.* 17: 28 (Jan.) 1937. Corner.¹¹ Hartman.^{2b} Brewer.^{2b}

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

GENERAL ELECTRIC LM-4 SUNLAMP
ACCEPTABLE

Manufacturer: General Electric Company, Appliance and Merchandise Department, 1285 Boston Avenue, Bridgeport, Conn.

The General Electric LM-4 Sunlamp generates ultraviolet radiation within the limits of the standards set by the Council for devices using the term "sunlamp." These standards require that the energy of wavelengths shorter than and including 2,800 angstroms shall not exceed 1 per cent of the total energy of wavelengths between 2,804 and 3,132 angstroms. These wavelengths fall in the spectral region of low erythematogenic action and render the sunlamp suitable for unsupervised use by the layman.

The ultraviolet source is mounted in a reflector which is supported by an adjustable stand. This stand consists of a base where the "slow-break" switch is located and a tubular column holding a bracket which allows for a 30 inch height adjustment of the reflector. This reflector may be tilted at any angle. All the wires are concealed, and there is an 8 foot cord with a rubber plug. The maximum height of the unit is 60 inches.

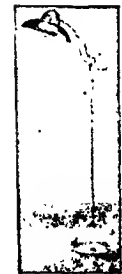
The source of ultraviolet energy, the type S-4 bulb, consists basically of a quartz mercury arc about 1½ inches long, enclosed in a special glass bulb which transmits ultraviolet wavelengths of 2,894, 2,967, 3,024 and 3,132 angstroms (and longer wavelengths) but which cuts off most of the wavelengths shorter than about 2,800 angstroms. The lamp produces the characteristic blue green light of the mercury line spectrum. The total power required is 120 watts, the line voltage 110-120; the lamp operates only on alternating current.

Relative Spectral Intensities

Wavelength (Angstroms)	Relative Energy (Average of 3 Lamps)
3,132	7.96
3,024	2.59
2,967	1.15
2,894	0.28
2,804	0.09
Total	12.07

In information submitted by the firm it is stated that five minutes exposure is required for a minimum perceptible erythema at 30 inches, or sixteen minutes at 54 inches.

To light the lamp the electrodes must be cool. When the lamp has been operating and turned off, up to two minutes is required before it will resume operation. The firm states that under average home use the life of the S-4 bulb is enough for more than a year's service.



General Electric LM-4 Sunlamp.

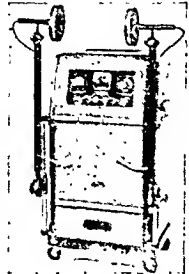
The radiation at 2,804 angstroms (and shorter if measurable) is about 0.75 per cent of the total of all wavelengths, including 3,132 and shorter. Mounted in an aluminum reflector the radiation at 2,894 angstroms and shorter, relative to the total, would be still lower; hence these lamps comply with the Council's requirements for acceptability of a sunlamp for spectral quality of ultraviolet radiation.

The Council voted to accept the General Electric LM-4 Sunlamp for inclusion on its list of accepted devices.

FISCHERTHERM MODEL 106-C-4
ACCEPTABLE

Manufacturer: The Fischer Corporation, 673-713 Ivy Street, Glendale, Calif.

The Fischerttherm 106-C-4 is designed for use in medical and minor surgical diathermy. Standard equipment includes pad, cuff, induction cable, surgical accessories and foot switch. Air-spaced electrodes are also available. The apparatus is housed in a wood cabinet 42 inches high, 22 inches wide and 16 inches deep. The weight is approximately 140 pounds.



Fischerttherm Model 106-C-4.

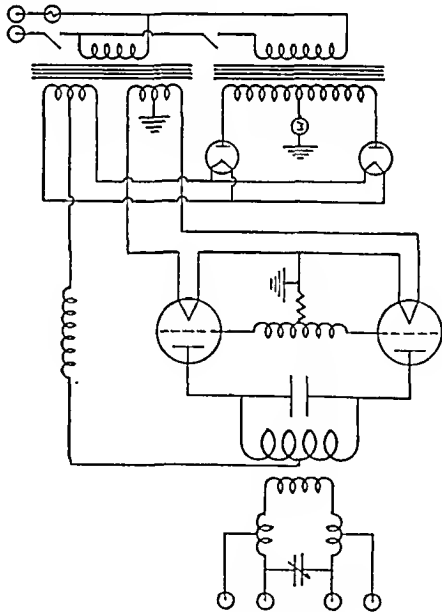
The apparatus provides a wavelength of 6 meters and utilizes two 354-C oscillating tubes and two rectifying tubes. It operates at 60 cycles, 115 volts.

In all the following tests, applications were given for twenty minutes and at an intensity corresponding to the patient's skin tolerance for heat. In applying the inductive cable, approximately 1½ inches of bath toweling was wrapped around the thigh and was held in place by approximately four turns of the inductive cable.

Results of Tests of Heating Tissue Submitted by the Firm

Technic	Deep Muscle, Degrees, F.		Oral, Degrees, F.	
	Initial	Final	Initial	Final
Pad	98.6	101.9	98.6	98.9
Cuff	98.9	104.8	98.7	99.2
Cable	98.6	104.0	98.5	99.1
Air-spaced disk	95.3	103.3	98.7	99.3

The Council's clinical investigation of the apparatus confirmed the firm's tissue heating tests.



Schematic diagram of circuit.

In order to determine the power output and the final transformer temperature, tests were conducted in a laboratory acceptable to the Council. The results of these tests are as follows:

Final transformer temperature (by resistance method)... 70.1 C.
(within the limits of safely prescribed by the Council)
Power output in watts..... 550 watts

The load was two 200 watt tungsten filament bulbs connected in parallel.

The Council on Physical Therapy voted to accept the Fischerttherm 106-C-4 for inclusion on its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 22, 1941

THE MEDICAL STUDENTS MUST BE DEFERRED

At a joint conference which included the Committee on Medical Preparedness of the American Medical Association, the Subcommittee on Medical Education of the Health and Medical Committee of the Coordinator for Health and Welfare, and the Council on Medical Education and Hospitals of the American Medical Association, which was held in the headquarters of the American Medical Association in Chicago on February 15, it was determined, after extended discussion, to send the following telegram at once to Mr. Clarence A. Dykstra, Director of the Selective Service System, in Washington, D. C.:

1. Since the five year preparedness program of the government will require about three thousand five hundred medical graduates annually to enter the service of the Army, Navy and Public Health Service for a year's training, the education of physicians must be continued at the present level and without interruption.

2. This is so vital to military and general welfare that we urge the Director of Selective Service to make clear to draft and appeal boards that it is in the interest of the country to provide deferment of military service for students in good standing in approved medical schools who may be called for duty under the Selective Service Act until they shall have obtained the degree of doctor of medicine. The Committee on Medical Preparedness of the American Medical Association offers its facilities for the verification of the credentials and such other information as may be needed in connection with the application of any medical student for deferment.

3. In order to provide a continuing supply of qualified medical students for the medical schools of this country, we urge also that students who have been accepted for admission to approved medical schools in a period not to exceed twelve months preceding enrolment be granted deferment of military training in order that they may complete the requirement for admission to medical schools.

4. Suggestions that the number of medical students be increased can have no relationship whatever to the situation now confronting us because such an increase in the number of students admitted to medical schools during the current year could not in any way affect the number of doctors available for either military or civilian service before 1946. Such an increase of medical classes would surely tend to lower the quality of instruction and in the end cause a deterioration of medical service.

Evidence was presented at this meeting to indicate that the needs of the Army Medical Department for

each of the five year training periods set up under the Selective Service Law will be for eight thousand medical officers from civilian life each year. This in itself will place a tremendous demand on our medical resources.

About five thousand two hundred young men graduate each year from our approved medical colleges, and every one of them must have at least one year of internship. Once the internship is completed, at least three thousand five hundred of these graduates will be needed to enter the services of the Army, Navy and Public Health Service for a year's training. Indeed, it is reasonable to believe that some serious adjustments will have to be made by hospitals during the next two years because of this requirement. Many of the institutions which now provide a one and one-half or two year general internship will have to be satisfied with one year of service.

Several suggestions have been made to meet the need that exists. Thus some have suggested that the number of medical students for the freshman year be increased at once by 10 per cent in all of our approved medical schools. As is pointed out in the statement sent to Mr. Dykstra, this would not provide a single competent medical man before 1946. Moreover, the suggestion fails to take into account several important facts: first, that our medical schools now have about all the students that they can carry with the available faculty, facilities and equipment; second, practically every boy who is really competent to undertake the type of medical education required in an approved medical school now gains admission. The fact that some eight hundred who enter medical school fail to complete the course is an indication of the difficulties raised by the modern medical curriculum. Third, the faculties themselves are being placed in the pool of medical men available for positions as medical officers with troops and for the staffs and chiefs of service in the new Army hospitals, which will within the next year or two be increased by fifty thousand additional beds.

Almost preposterous is the strange suggestion emanating from some leaders in Washington that only third and fourth year medical students and interns be deferred. When it is realized that there is a constant and definitely anticipated loss of men from the medical schools from the day of first enrolment to the day of graduation, it can be recognized that any depletion of available medical students from the moment when they are accepted for entrance into medical school until they have finally completed their internship will be hazardous in times like these.

Several plans have been suggested for obviating the fact that the Selective Service Law does not provide for blanket deferment of any particular group. First, there is the possibility of amendment of the law. The medical profession does not ask this. Recognizing that blanket deferment of medical students would raise at

once the question of deferment of men who are studying medicine in schools conducted by medical cults and in schools of inferior grade, the medical profession is content with the concept that deferment may be secured if the Director of the Selective Service will make clear to draft and appeal boards that it is in the interest of the country to provide deferment of military service for medical students in good standing in approved medical schools. No one is asking exemption for these boys. All that is being asked is deferment until they shall have obtained the degree of doctor of medicine, when the vast majority of them may be depended on to take at once a year of medical military training and to be thereafter available in the organized medical reserve corps. The law does provide that persons in essential occupations for the maintenance of the public health and security may be deferred. Any policy which permits a single qualified student in an approved medical school to be taken out of that training and put into other military service is indication of a lack of foresight and of a failure to appreciate the actual needs of the nation in this emergency.

INDUCED THIAMINE DEFICIENCY IN MAN

Most of the experimental work on the role of the various food factors in nutrition has been necessarily carried out on animals. Accurate descriptions of the symptoms which result from uncomplicated vitamin deficiencies in experimental animals are available, while comparable information bearing on human beings is often lacking or is incomplete. Although the knowledge gained from animal experimentation has contributed immeasurably to our understanding of the role assumed by various vitamins in human nutrition, investigations of this type alone cannot yield all the desired information. Recently experimental studies have been made in which human beings have served as subjects. Although such investigations are difficult, they are amply justified in view of the great practical value of the results.

Many investigators have studied the experimental production of a deficiency of thiamine in man. Jolliffe and his associates,¹ for instance, maintained several subjects for a number of days on diets that were partially deficient in thiamine and were probably adequate in all other dietary essentials. The report on this study embodied a description of the disturbances encountered in the experimental subjects and contained useful information on the relationship between urinary excretion and intake of thiamine. Much additional information relative to the symptoms of thiamine deficiency in human subjects has been afforded by the extensive investiga-

tions of Williams and his associates.² The most recent report by these investigators is particularly worthy of attention because it not only furnishes more accurate information on the results of uncomplicated vitamin B₁ deficiency in man but also raises questions concerning the etiology of some of the common symptoms of beriberi and the requirement of this food factor.

In the latest experiments of Williams and his co-workers a number of persons were given a diet deficient in thiamine for a period of almost three months. The degree of debility induced by the withdrawal of thiamine from the diets of these persons was impressive; fatigue, lassitude and loss of interest in food developed early and increased progressively as the period of deficiency was extended. The time of development of severe symptoms was not the same for all and seemed to be related to physical activity, the more active subjects developing symptoms earlier. Depressed mental states, generalized weakness, dizziness, backache, soreness of muscles, dyspnea, insomnia, anorexia, nausea, vomiting, loss of weight, slight roughness of the skin and atony of muscle were encountered. Faint heart sounds, lowered blood pressure and bradycardia when at rest, and tachycardia and sinus arrhythmia on exertion were likewise observed. Changes in the size of the heart were not found in any case, nor was edema observed. The concentration of plasma proteins remained within normal limits in all cases, as did the values for calcium and phosphorus in the serum. Neither anemia nor cheilosis was present, but capacity for muscular work fell progressively. Also of interest was the development of electrocardiographic abnormalities, which consisted in the diminution of the amplitude of all complexes and particularly of the T waves of the chest leads.

These observations on the effects of uncomplicated thiamine deficiency in man are of unusual interest and importance. While edema, cardiac dilatation and peripheral pain are often encountered in beriberi, these symptoms were entirely lacking in the disease induced by restricting the dietary intake of thiamine. In view of their observations, Williams and his associates have been led to question whether a deficiency in thiamine alone is responsible for the classic features of beriberi. The investigators point out that the early stage of the disease induced by restricting the intake of thiamine closely resembles neurasthenia, while the later stage is similar to anorexia nervosa. This conclusion, of course, does not imply that all the patients with conditions diagnosed as neurasthenia can be shown to be suffering from thiamine deficiency. Indeed, it is possible that only a small percentage of such conditions is of nutritional origin, although it is likewise possible that the number is large. On the basis of their experi-

1. Jolliffe, Norman; Goodhart, Robert; Gennis, Joseph, and Cline, J. K.: The Experimental Production of Vitamin B₁ Deficiency in Normal Subjects: The Dependence of the Urinary Excretion of Thiamine on the Dietary Intake of Vitamin B₁, *Am. J. M. Sc.* 195: 198 (Aug.) 1939.

2. Williams, R. D.; Mason, H. L., and Smith, B. F.: Induced Vitamin B₁ Deficiency in Human Subjects, *Proc. Staff Meet., Mayo Clin.* 14: 787 (Dec. 13) 1939. Williams, R. D.; Mason, H. L.; Wilder, R. M., and Smith B. F.: Observations on Induced Thiamine (Vitamin B₁) Deficiency in Man, *Arch. Int. Med.* 66: 787 (Oct.) 1940.

mental results, Williams and his associates suggest that thiamine deficiency, as it exists in sections where beriberi and pellagra are uncommon, should be looked for principally in that group of patients whose condition has been diagnosed as neurasthenia.

In the experiments of Williams and his collaborators a dietary supply of 0.95 mg. of thiamine (285 U. S. P. units) was not associated with evidence of nutritional deficiency in the persons studied. Nevertheless, this amount was apparently not adequate for the best nutritional state of the patient, for greater allowances of thiamine resulted in an increase in alertness and attentiveness of experimental subjects and permitted a more satisfactory performance of these subjects with an exercising device. Unfortunately, this conclusion was based on limited experimental data; an extension of this phase of the investigation would be of great practical value. Experiments carried out during the winter and summer seasons indicated that symptoms of thiamine deficiency developed earlier among those whose diets were restricted during the winter months. This indication that a climatologic factor may influence the rate of development of evidence of thiamine deficiency would also seem to merit further study.

The type of investigation discussed in the foregoing paragraphs furnishes a more exact knowledge of the symptoms encountered as a result of the lack of particular dietary ingredients. A deficiency disease such as pellagra, scurvy or beriberi, as observed clinically, does not ordinarily represent an uncomplicated deficiency of a single dietary factor. It is only by controlled experimental investigations that the precise role of any particular vitamin in human nutrition can be determined.

Current Comment

HISTOPLASMOSIS

At relatively infrequent intervals since 1905, cases of histoplasmosis have been reported in the American literature. In that year Samuel Taylor Darling described three cases with a clinical picture somewhat similar to kala-azar but with tissues containing the organism which he named *Histoplasma capsulatum*. In a recent review of the subject Meleney¹ discusses thirty-two cases of the disease, thirteen of which have not yet been reported in the literature and twenty-two of which were recorded in the continental United States. The disease should be suspected, Meleney points out, in patients presenting a wide variety of clinical symptoms and signs. Any condition characterized by enlargement of the liver and spleen, by generalized or regional enlargement of the lymph nodes, by an aplastic or undiagnosed secondary type of anemia or leukopenia, by generalized or localized abscesses or ulcers of the skin or by chronic pulmonary infections should lead one to suspect histoplasmosis. In advanced systemic infec-

tions the organisms may be found in thin smears of the peripheral blood or in dehemoglobinized thick drops similar to those used for the diagnosis of malaria. Spleen, liver, lymph node or sternal puncture may reveal the organisms and a careful examination of sputum may show their presence. Animal inoculation and cultivation have been of diagnostic value. Therapy has not proved especially effective but Meleney believes that antimony preparations should receive particular attention. The disease appears to be widely distributed throughout the world and will doubtless be recognized with increasing frequency in the future. Its close resemblance to kala-azar in clinical symptomatology presents a problem which requires considerable diagnostic acumen to penetrate.

COLD PREPARATIONS UNDER COLD SCRUTINY

On February 3 W. G. Campbell, Commissioner of Food and Drugs of the Food and Drug Administration, notified all manufacturers of "cold" preparations that henceforth this class of products will be included in the administration's program of operations. The announcement pointed out that present day medical opinion supports the view that there is no known substance or mixture of substances which can be relied on to prevent or cure colds; further, that surveys of products which now appear on the market show that many of them make claims that involve the treatment or prevention of colds which are not justified by the scientific facts, while others exaggerate the effects which the medications will have on the symptoms; and finally, now that section 201 (n) of the Food, Drug and Cosmetic Act is fully effective, in the opinion of the administration any reference to colds in the labeling of a drug should clearly indicate just what the effects of the medicine with respect to this disease condition will be and, if necessary to avoid misunderstanding, just what the limitations of the medication are. The commissioner bases this on the fact that section 201 (n) requires that the label reveal any facts that are material in the light of such affirmative representations as the label may make. By way of explanation, the notice includes a statement to the effect that, for various reasons, one of which has been lack of adequate facilities, the Food and Drug Administration has not in the past given attention to the large number of preparations sold for the treatment or prevention of colds or for the mitigation of the symptoms of this disease, but that henceforth this class of products will be included in the administration's program of operations. Recently THE JOURNAL called attention to the promotion of one line of these preparations in which it was suggested that the druggist prescribe such items for the treatment of the active cold. This illustrated the extent to which manufacturers of these preparations have gone in promoting them to the public. Now that the Food and Drug Administration has determined to review the claims made it will be exceedingly interesting to watch the changes which will take place in the claims which are made for many of these preparations.

1. Meleney, H. E.: Histoplasmosis (Reticulo-Endothelial Cytomycosis): A Review, *Am. J. Trop. Med.* 20: 603 (July) 1940.

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

PLANS FOR COORDINATION

Federal Security Administrator Paul V. McNutt has announced appointment of an interdepartmental advisory committee, composed of officials of various federal agencies working in the fields of health and welfare, to assist and advise him in coordinating all health, medical care, welfare, nutrition, recreation and related activities affecting national defense.

The administrator said that the field staffs of various governmental agencies would also play an important part in securing effective coordination of these programs. He explained that he had established twelve federal regional advisory councils made up of the field representatives of all federal agencies participating in these activities and that he had designated the twelve regional directors of the Social Security Board as regional defense coordinators.

These coordinators, he said, will act as chairmen of the regional advisory councils and maintain the relationships in these fields with the state defense councils in their respective regions.

Mr. McNutt declared that he was now setting up a small staff within his office to assist him and Assistant Coordinator Charles P. Taft to coordinate health and welfare and related defense activities. This staff is headed by Miss Gay Shepperson, former work project administrator for Georgia.

The federal agencies and their representatives composing the interdepartmental advisory council include Arthur Altmeyer, chairman, Social Security Board; Aubrey Williams, administrator, National Youth Administration; J. J. McEntee, director, Civilian Conservation Corps; J. W. Studebaker, director, Office of Education; Dr. Warren Draper, Acting Surgeon General, Public Health Service; C. B. Baldwin, administrator, Farm Security Administration; M. L. Wilson, director, Extension Work; Milo Perkins, administrator, Surplus Marketing Administration; Dr. Louise Stanley, chief, Bureau of Home Economics; John M. Carmody, administrator, Federal Works Agency; Howard O. Hunter, acting commissioner, Work Projects Administration; Frances Perkins, secretary of labor; Katherine Lenroot, chief, Children's Bureau; Conrad Wirth of the National Park Service; Harold W. Breining, assistant administrator, Veterans Administration; Charles W. Eliot, director, National Resources Planning Board, and the following members from the Advisory Commission to the Council of National Defense: Frank Bane, director, Division of State and Local Cooperation; Charles Palmer, housing coordinator; J. B. Hutson, agriculture division; Sidney Hillman, labor division, and Harriet Elliott, Consumer Protection Division.

ASSISTANCE OF THE AMERICAN MEDICAL ASSOCIATION IN CLASSIFICATION AND PROCUREMENT OF PHYSICIANS FOR MILITARY SERVICE

The Adjutant General of the Army has sent the following instructions to the Surgeon General and to each corps area and department commander:

1. The following plan has been approved and will be placed in operation at such time as the War Department may direct.

(a) The American Medical Association will prepare and maintain a roster of civilian physicians, classified as to professional specialties and proficiency, who have agreed to accept commissions in the Army of the United States when needed for immediate active duty during a national emergency.

(b) The Surgeon General will designate one or more medical officers of the Regular Army who will be placed on duty at Headquarters, Sixth Corps Area, as representatives of his office in all matters pertaining to the Medical Corps Reserve and the American Medical Association.

(c) Corps area commanders will report, at times specified by the War Department, the number of Medical Corps Reserve officers under their assignment jurisdiction who are available for active duty.

(d) Vacancies in allotments made to any corps area by the War Department that cannot be filled by the detail of a qualified Reserve officer under the assignment jurisdiction of the corps area commander will be promptly reported to the War Department, which will cause them to be filled from Medical Corps Reserve officers in the Army and Service Assignment group, or by adding these vacancies to the allotment of other corps areas having a surplus.

(e) If no qualified Reserve officer can be found, the Surgeon General will notify his representative at Headquarters, Sixth Corps Area, as to the qualifications desired and the location and grade of the vacancy. The representative will then secure recommendations from the American Medical Association and forward all information to the appropriate corps area commander, notifying the War Department of the action taken. The corps area commander will immediately cause the candidate to be given a physical examination and, if found qualified, will secure from the applicant a properly completed application for commission (W. D., A. G. O. form 170). All papers will then be forwarded to the Adjutant General for final action by means of air mail and "Immediate Action" stationery when necessary.

(f) Corps area commanders are not authorized to grant waivers for physical defects in these instances but may reject a candidate when found physically disqualified, notifying the Adjutant General of the action taken.

(g) On receipt of a properly executed oath of office, the corps area commander will cause orders to be issued placing the appointee on immediate active duty.

(h) No appointments will be made under this authority of applicants over 55 years of age.

(i) The appearance of the candidate before an examining board as prescribed in AR 140-5 will be waived in these cases.

2. The Surgeon General and corps area and department commanders will complete all arrangements necessary to place the plan in operation without delay when directed by the War Department.

ROTATION OF NATIONAL GUARD AND RESERVE MEDICAL DEPARTMENT OFFICERS

The Adjutant General of the Army has sent the following memorandum to the commanding generals of all armies and the commanding generals of all corps areas:

1. On receipt of individual applications and with the approval of all commanders concerned, Reserve and National Guard Medical Department officers, after approximately six months' duty with its fixed installations, may be afforded an opportunity to attend a one month refresher course at the Medical Field Service School with a view to subsequent assignment to medical field or tactical units. Subject to the same conditions, Reserve and National Guard Medical Department officers, after approximately six months' duty with field or tactical units, may receive a one month refresher course at certain general hospitals, with subsequent assignment to fixed medical installations.

2. Subject to the approval of all commanders concerned, Medical Department commissioned personnel may be rotated within regimental medical detachments and between regimental medical detachments and medical battalions, squadrons and regiments.

3. However, the procedure authorized in paragraphs 1 and 2 must not interfere with or be detrimental to the balanced training of National Guard units, so prescribed that they may be prepared to take the field on short notice.

NEW INSTRUCTIONS GOVERNING PHYSICAL EXAMINATIONS FOR RESERVE AND NATIONAL GUARD OFFICERS

Additional instructions governing the physical examination of reserve officers and National Guard officers ordered to active duty for periods of more than thirty days were announced on January 17 by the War Department.

According to the new instructions, only one examination is prescribed or authorized for each officer to determine his physical qualification for extended active duty. This examination, however, carries with it the right of appeal in certain cases. It may be given not more than sixty days prior to the effective date of each officer's active duty or after he has reported for such active duty, subject to the following provisions:

1. Examination prior to actual entry on active duty will be made at the option and on the request of the individual concerned, and without expense to the federal government for travel or pay.

2. A National Guard officer not examined prior to induction, as authorized, will be examined at the earliest practicable date following induction. If it is not practicable to give such an examination before he departs from his home station, the examination will be deferred until his arrival at his unit training center or other station where the necessary medical personnel and facilities are available, and in any event within the first thirty days of active duty. In such cases the commanding general of the corps area or department of origin will notify the army commander concerned, who will arrange with the commanding general of the corps area or department of destination for the necessary examination.

3. A reserve officer not examined prior to entry on active duty will be ordered to active duty without a prior physical examination. If he is to be permanently assigned to a station in his corps area or department of residence not more than 500 miles distant from his home, and if his station has the necessary medical personnel and equipment to make physical examinations of the type prescribed by army regulations, he will be ordered to proceed directly to his permanent station where the physical examination will be given. If the officer's first permanent assignment is to be (a) a station outside the corps area or department of his home, (b) a station more than 500 miles from his home or (c) a station within the corps area or department of his home but one at which personnel and equipment required for physical examination are not available, he will be assigned to his permanent station but ordered to proceed on temporary duty to the nearest army station, where the physical examination prescribed by army regulations can be made; if found physically qualified, he will then proceed to his permanent station in compliance with original orders. In any event, the physical examination shall be completed within the first thirty days of active duty.

To be acceptable, examinations prescribed by army regulations, whether made prior to or after entry on active duty, must be made at an army medical installation where professional specialists and proper facilities are available for complete physical examination.

The examinations prescribed by army regulations will be made by boards of three or more medical officers, at least one of whom shall be an officer of the Medical Corps of the Regular Army. If practicable, in the examination of National Guard officers at least one member of the board will be a medical officer of the National Guard of the United States and, if practicable, in the examination of reserve officers at least one member of the board will be a reserve medical officer.

Physical standards for all active duty are those prescribed in AR 40-100, AR 40-105 and, in addition, for the Air Corps in AR 40-110, except as modified for certain officers of the National Guard who were commissioned or examined and found qualified for federal recognition or appointment in the National Guard of the United States prior to July 2, 1940.

Examination to determine physical qualification for extended active duty will include a roentgenogram of the chest, a serologic test for syphilis and a urine examination, including microscopic examination. An electrocardiogram will be made if the officer is 50 years of age or older, if the officer is 45 years of age or older and is required by assignment or orders to participate regularly in airplane flights, or if in the opinion of the medical examiner such examination is indicated.

Corps area and department commanders except in cases expressly reserved by the War Department are authorized to make final determination of the physical qualification of individual officers without reference to the War Department, except in cases involving physical fitness for flying. Action in the latter cases will be as prescribed in AR 40-110.

They are authorized also to grant waivers for physical defects when the interest of the government or of the military service is not compromised, provided the defects will not interfere with the satisfactory performance of duties appropriate to the grade of the individual concerned and are not likely to be aggravated as a result of active military service. In certain other cases waivers will be granted only on the written request of the affected individual, and in such cases pertaining to National Guard officers the recommendation of the division or separate unit commander concerned will also be necessary. Each request for the latter type of waiver must be accompanied by an affidavit from the individual concerned acknowledging that the physical defects on which waiver is requested existed prior to entry into active military service, and that they were not the result of such service.

Only the War Department and corps area and department commanders are authorized to adjudge an officer physically disqualified for extended active duty, and only these authorities may authorize his relief from extended active duty for physical disqualification. Similarly, only these authorities may adjudge an officer physically qualified for active duty.

National Guard officers found to be disqualified as a result of physical examination prior to induction, and whose federal recognition is not withdrawn by that date, will be relieved from active duty on the effective date of such induction, on orders issued by the corps area or department commander.

If found to be disqualified as a result of physical examination subsequent to induction, National Guard officers will be relieved from active duty on determination of disqualification, on orders issued by the army, corps area or department commander.

If found to be physically disqualified, National Guard officers thereupon become subject to withdrawal of federal recognition and termination of commission in the National Guard of the United States. Such withdrawal and termination will be accomplished by the War Department.

Reserve officers found to be physically disqualified as a result of physical examination prior to the effective date of active duty, will not be ordered to extended active duty. If found to be physically disqualified as a result of physical examination subsequent to the effective date of active duty, they will be returned to their homes and relieved from active duty.

An officer already on extended active duty who is reported as physically disqualified by the board which conducted the examination of the type specified by army regulations will be retained on active duty pending decision on appeal, if request for appeal is made, or on request for waivers, if any.

To handle appeals, each corps area and department commander will convene as many medical appeal boards as he deems necessary. Such boards will consist of two or more medical officers of mature experience and judgment, other than those comprising the examination boards convened according to army regulations to physically examine officers.

If the physical examination of the type prescribed in army regulations discloses disqualifying defects, the officer will be so informed by the corps area or department commander in whose jurisdiction the National Guard or reserve officer was examined. This notice will announce the specific defects which indicate that the officer is physically disqualified for active duty. He will be advised in the same communication of his

right to appeal from the findings of the board which conducted the physical examination, provided, if the officer is not on extended active duty, that he is willing to defray from personal funds the cost of travel involved in appearing before the appeal board and his subsistence in hospital, if hospitalization is involved in the appeal examination.

In considering appeals, a medical appeal board will limit its examination to the disqualifying defects reported by the examining board. Medical appeal boards are without authority to extend their examinations beyond these defects. When practicable, applicants will be ordered before an appeal board at a hospital or dispensary other than the one in which they were originally examined.

The right of appeal is retroactive to include all National Guard and reserve officers who have been found to be disqualified physically for extended active duty since Sept. 6, 1940, provided, if the officer is now on an inactive status, that the reexamination be made without expense to the government for travel and pay, and provided, further, that the individual concerned has not subsequently been discharged from the National Guard of the United States or the Officers' Reserve Corps, as the case may be.

Except as to flying officers and as to officers whose cases have been expressly reserved by the War Department, action of the corps area or department commander on recommendations of medical appeal boards will be final.

A reserve officer who receives a physical examination of the type prescribed by army regulations prior to the effective date of his extended active duty, and who reports for active duty within sixty days thereafter, will be given a physical examination, as required by Public Resolution 96, Seventy-Sixth Congress, to determine defects arising from intervening illness or injury since the prior complete examination.

Each such examinee will exhibit to the medical examining board his copy of the report of prior examination and will also furnish the board a certificate in duplicate that he has or has not suffered an illness or injury since the date of the prior examination. The certificate will indicate in detail the nature and extent of any intervening illness or injury.

When required, examinations to determine physical defects arising from intervening illness or injury will be made at the earliest practicable date after the officer concerned has arrived at his permanent station, and in any event within the first thirty days of active duty. Such examinations will be made by one or more medical officers of the Army of the United States.

An officer, examined within sixty days prior to actual entry upon active duty, and found physically qualified for such duty, will not be relieved from or rejected for active duty because of anything found in the examination to determine intervening disease or injury, except as follows:

If, because of intervening illness or injury, the officer concerned is unable to report in person to the place designated in his active duty or induction orders, he will be examined at the place where he is confined by illness or injury. Final disposition of the cases of such officers will be made by corps area and department commanders after consideration of the report of the medical officer or medical board who conducted the examination. The same examination shall be made and the same action taken with respect to an officer, previously not examined, who because of injury or illness is unable to report to the station and at the time indicated in the orders directing his extended active duty.

If the officer who has reported in person to the designated place for active duty is considered to have a disqualifying defect, he will be ordered to an army general hospital, and if found thereafter by a disposition board to be physically disqualified for active duty, he will be relieved from active duty by the corps area or department commander, or, in appropriate cases he will, on approval of the War Department, be brought before an army retiring board in accordance with the provisions of the Act of April 3, 1939. If approved findings of the disposition board determine that the officer is physically qualified for active duty, he will be ordered to his organization for duty.

SURGEON GENERAL'S OFFICE MOVED

The office of the Surgeon General of the Army has just been moved from the War Department Annex No. 1 at 401 Twenty-Third Street N.W., Washington, D. C., to the Social Security Building, Fourth and C streets S.W., where the offices of the Ordnance Department are located.

NEW COMMANDANT AT NAVY MEDICAL CENTER

Rear Admiral Charles M. Oman, Medical Corps, U. S. Navy, has been assigned to command the Navy Medical Center in Washington, D. C., relieving Rear Admiral Harold W. Smith, who takes over the duties of inspector of medical activities for the Atlantic Coast, with station in the Bureau of Medicine and Surgery in Washington.

EIGHTEEN BRANCHES OF SCHOOL OF AVIATION MEDICINE

The War Department has established at various Air Corps stations in the United States, Hawaii and the Panama Canal Zone eighteen branches of the School of Aviation Medicine at Randolph Field, Texas. Branches were established to provide the practical training of officers of the medical reserve corps who have satisfactorily completed the extension course of the School of Aviation Medicine and who are candidates for graduation as aviation medical examiners. The central School of Aviation Medicine at Randolph Field was founded to train medical officers in the principles of examination of aviators and in the aviation specialties such as ophthalmology, cardiology and neuropsychiatry, and in the administration of the medical department as related to special requirements of the Air Corps.

CONTRIBUTIONS FOR MEDICAL SUPPLIES FOR GREECE

Dr. Haven Emerson, New York, chairman of the American Physicians Committee to Aid Greece, said on January 29 that shipments of medical supplies to Greece will have to be stepped up if a major health calamity is to be avoided in that country. A dispatch from the executive officer of the American Red Cross in Greece, Charles A. House, who had made a tour of the regions behind the front, reported that, while local authorities were doing everything in their power to care for the sick and wounded, the scope for further aid from America was enormous and all manner of surgical equipment was badly needed. Dr. Emerson said there has been a decided falling off in the last few weeks in the amount of contributions received for sending medical and surgical supplies to Greece and that during the last week the Medical and Surgical Supply Committee of America, 420 Lexington Avenue, New York City, had shipped only \$7,368 worth of such supplies to Athens, as compared to previous shipments of over \$10,000 each.

INDUSTRIAL HYGIENE PROGRAMS AND UNITS

The Division of Industrial Hygiene of the U. S. Public Health Service is preparing to assist in the prevention and control of health hazards in government arsenals and navy yards. The Surgeon General has authorized the Division of Industrial Hygiene to employ additional personnel to organize industrial hygiene programs and to train personnel within these military establishments to carry out the programs.

The Surgeon General has also authorized the Division of Industrial Hygiene to assign several units, each consisting of a doctor and an engineer, to cooperate with state industrial hygiene units in giving special attention to airplane and munitions plants and to shipyards. The Vermont unit is now receiving assistance in the investigation of health problems which have arisen in the machine tool industry as a result of inadequate housing, long hours of work and certain foundry hazards. State industrial hygiene units are urged to inform the Division of Industrial Hygiene of their most immediate defense problems and to make suggestions which may be helpful to other units.

ARMY RESERVE OFFICERS ORDERED TO ACTIVE DUTY

SECOND CORPS AREA

The following additional medical reserve corps officers had been ordered to active duty by the Commanding General, Second Corps Area, up to February 7. The Second Corps Area comprises the states of New York, New Jersey and Delaware.

BANDES, Joseph, 1st Lieut., New York, Fort Dix, N. J.
BRODEY, Adrian, 1st Lieut., Far Rockaway, N. Y., Carlisle Barracks, Pa.
COHEN, William, 1st Lieut., Trenton, N. J., Fort Benning, Ga.
CORVIN, Emanuel M., 1st Lieut., New York, Fort Hamilton, N. Y.
DELNEGRO Albert E., 1st Lieut., Newark, N. J., Savanna Ordnance Depot, Savanna, Ill.
DIENER, Samuel, 1st Lieut., Newark, N. J., Fort Benning, Ga.
DUTTO, Bartholomew J., 1st Lieut., Kingston, N. Y., Camp Livingston, La.
ENGLE, Jerome W., 1st Lieut., Yonkers, N. Y., Fort Dix, N. J.
EVANS, Alexander L., 1st Lieut., Willard, N. Y., Fort Ontario, N. Y.
GILNER, Abraham, 1st Lieut., New York, Fort Constitution, N. H.
GIORGINI, Gino L., 1st Lieut., Copiague, N. Y., Fort Dix, New Jersey.
GLICK, Louis J., 1st Lieut., New Rochelle, N. Y., Fort Dix, N. J.

FOURTH CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Fourth Corps Area, which comprises the states of Tennessee, North Carolina, South Carolina, Alabama, Georgia, Mississippi, Florida and Louisiana:

BARNES, Justus M., Captain, Montgomery, Ala., Camp Wheeler, Ga.
BELL, Francis E., 1st Lieut., Palatka, Fla., Camp Davis, N. C.
BILLINGHURST, George A., 1st Lieut., Milledgeville, Ga., Camp Wheeler, Ga.
BOSTICK, John N., 1st Lieut., Gilbert, La., Camp Wheeler, Ga.
BOWEN, Lucius M., 1st Lieut., Waverly, Tenn., Fort Bragg, N. C.
BROWN, Harry G., 1st Lieut., Natchez, Miss., Camp Wheeler, Ga.
CRANKSHAW, Daune W., Major, Burton, N. C., Fort Benning, Ga.
DIETRICH, Julius, 1st Lieut., Crossville, Tenn., Camp Forrest, Tenn.
DUSENBERRY, James F., 1st Lieut., Laurens, S. C., Fort Jackson, S. C.
EDWARDS, Franklin D., Captain, Columbus, Ga., Camp Wheeler, Ga.
FOLSOM, Charles W., 1st Lieut., Miami, Fla., Camp Wheeler, Ga.
GALLIS, Anthony H., 1st Lieut., Atlanta, Ga., Fort Benning, Ga.
GOLDEN, William C., 1st Lieut., Clanton, Ala., Camp Davis, N. C.
HAMILTON, Andros S., 1st Lieut., Monroe, La., Camp Claiborne, La.
HOUSER, Frank M., 1st Lieut., Macon, Ga., Camp Wheeler, Ga.
JORDAN, Henry C., Captain, Robertsdale, Ala., Fort Bragg, N. C.
KISNER, Wendell H., 1st Lieut., Baton Rouge, La., Camp Croft, S. C.
LAMAR, Carlos A. P., 1st Lieut., Miami, Fla., Camp Wheeler, Ga.
MANNING, William S., Lieut. Col., Jacksonville, Fla., Jacksonville, Fla.
MILLING, Chapman J., 1st Lieut., Columbia, S. C., Fort Jackson, S. C.
MITCHELL, William B., 1st Lieut., Trion, Ga., Fort McClellan, Ala.

SIXTH CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Sixth Corps Area. The Sixth Corps Area comprises the states of Wisconsin, Illinois and Michigan.

ALBAUM, Joseph, 1st Lieut., Lincoln, Ill., Illinois Induction Board.
ALLEN, Elmer S., 1st Lieut., Arcola, Ill., 2d Medical Battalion, Fort Sam Houston, Texas.
APPEL, Ben Arthur, 1st Lieut., Standish, Mich., Illinois Induction Board.
BARON, Benzoim C., Captain, Munising, Mich., Armored Forces, Fort Benning, Ga.
BENSON, George, 1st Lieut., Richland Center, Wis., Armored Forces, Fort Benning, Ga.
BERNSTEIN, Max M., 1st Lieut., Chicago, Station Hospital, Camp Grant, Ill.
BOALS, Robert T., 1st Lieut., Detroit, William Beaumont General Hospital, El Paso, Texas.
BROSIN, Henry W., 1st Lieut., Chicago, Station Hospital, Fort Custer, Mich.
CARY, Erwin C., Captain, Reedsville, Wis., Armored Forces, Fort Benning, Ga.
DEL BECCARO, Edward V., Major, Chicago, Station Hospital, Fort Sam Houston, Texas.
DROEGE, Edward H., Captain, Granite City, Ill., Armored Forces, Fort Benning, Ga.
FAVUS, Irving, 1st Lieut., Chicago, 61st C. A., Fort Sheridan, Ill.
FELDMAN, Emanuel, 1st Lieut., Bayonne, N. J., 5th Division, Fort Custer, Mich.
FELDMAN, Harold, Captain, Pekin, Ill., Armored Forces, Fort Benning, Ga.
FILEK, Allan, Captain, Green Bay, Wis., Armored Forces, Fort Benning, Ga.
FISHER, Seymour, Captain, Springfield, Ill., Station Hospital, Fort Sheridan, Ill.

GOODWIN, Edward M., 1st Lieut., New York, Fort Hamilton, N. Y.
KOLBE, Joseph T., 1st Lieut., Mount Vernon, N. Y., Camp Upton, N. Y.
KOPET, Sidney J., 1st Lieut., Brooklyn, Camp Livingston, La.
LEIDER, Sydney, 1st Lieut., Brooklyn, Fort Devens, Mass.
LEVER, Shelby M., 1st Lieut., Brooklyn, Fort Devens, Mass.
LITTER, Leo, 1st Lieut., New York, Fort Hancock, N. J.
MAISEL, Irving, 1st Lieut., Newark, N. J., Savanna Ordnance Depot, Savanna, Ill.
MARKOWITZ, Isidor, Captain, Brooklyn, Army Recruiting Station, Newark, N. J.
METZ, Henry, 1st Lieut., Hackensack, N. J., Fort Dix, N. J.
OFFENKRANTZ, Frederick M., 1st Lieut., Newark, N. J., Fort Jay, N. Y.
ORANSKY, Marvin, 1st Lieut., Newark, N. J., Fort Benning, Ga.
PIERCE, Henry A., 1st Lieut., Leonia, N. J., Fort Dix, N. J.
RUGGIERO, Wilfred F., 1st Lieut., New York, Carlisle Barracks, Pa.
SCHMESING, Clifford A., 1st Lieut., Salamanca, N. Y., Fort Niagara, N. Y.
SCHWARTZ, Louis, 1st Lieut., New York, Fort Devens, Mass.
SHAPIRO, Morris A., 1st Lieut., Schenectady, N. Y., West Point, N. Y.
TURANO, William M., 1st Lieut., New York, Fort Hamilton, N. Y.
WARRES, Herbert L., 1st Lieut., Brooklyn, Fort Devens, Mass.
WEISS, Henry W., 1st Lieut., Ellenville, N. Y., Fort Devens, Mass.

NEW, James S., 1st Lieut., Milledgeville, Ga., Camp Davis, N. C.
POOLE, Everett B., Captain, Greenville, S. C., Camp Croft, S. C.
RINAMAN, James C., Captain, Miami, Fla., Camp Wheeler, Ga.
ROBINSON, Melvin D., 1st Lieut., Greenwell Springs, La., Camp Croft, S. C.
SMITH, James S., Captain, Miami, Fla., Camp Wheeler, Ga.
SNELLING, William R., 1st Lieut., Columbus, Ga., Fort McClellan, Ala.
STAMM, Joseph, 1st Lieut., New Orleans, Camp Wheeler, Ga.
TISDALE, Albert A., 1st Lieut., LaFayette, La., Camp Croft, S. C.
TUGWELL, Wilton E., 1st Lieut., Pensacola, Fla., Fort Bragg, N. C.
WILLIAMS, Charles R., 1st Lieut., Wadley, Ga., Camp Croft, S. C.
WILSON, Richard A., 1st Lieut., Wilmington, N. C., Fort Devens, Mass.
WITHERINGTON, Albert S., Jr., 1st Lieut., DeQuincy, La., Camp Wheeler, Ga.

Orders Revoked

The following officers, previously reported, have been relieved from duty or their orders have been revoked:

BATES, Thomas H., Major, Lake City, Fla.
FISHER, Roy A., Jr., 1st Lieut., Knoxville, Tenn.
GIBSON, Rac B., 1st Lieut., Greeneville, Tenn.
GOLDEN, William C., 1st Lieut., Clanton, Ala.
GRIFFIN, James C., 1st Lieut., Tampa, Fla.
LEA, Joseph D., 1st Lieut., Baton Rouge, La.
NEILL, Francis K., 1st Lieut., Albany, Ga.
NUNGESTER, Garrold H., 1st Lieut., Decatur, Ala.
PALMER, Yates S., 1st Lieut., Valdese, N. C.
WARD, Albert L., 1st Lieut., Fort St. Joe, Fla.
WORLEY, Wyeth B., 1st Lieut., Shreveport, La.

FOLEY, Mark E., 1st Lieut., St. Nazianz, Wis., 5th Division, Fort Custer, Mich.
FRACKELTON, William H., 1st Lieut., Milwaukee, William Beaumont General Hospital, El Paso, Texas.
HAGELSHAW, Gayland L., Major, Bay City, Mich., Fitzsimons General Hospital, Denver.
HOLDEN, Alwin J., Lieut. Col., Chicago, Station Hospital, Fort Sam Houston, Texas.
HOLT, Henry T., Captain, Detroit, 5th Division, Fort Custer, Mich.
HUBBLE, William F., 1st Lieut., Decatur, Ill., 1st Medical Battalion, Fort Bliss, Texas.
JOHNSON, Henry C., Major, Madison, Wis., Station Hospital, Camp Grant, Ill.
KENNEDY, Richard L., 1st Lieut., Chicago, Puerto Rican Department.
KOCOVSKY, Elmer C., 1st Lieut., Milwaukee, Reception Center, Camp Grant, Ill.
LUM, Thomas K., Captain, Danville, Ill., Fort Benning, Ga.
MACINTYRE, Dugald S., 1st Lieut., Ann Arbor, Mich., William Beaumont General Hospital, El Paso, Texas.
MAMMOSER, Lambert F., Captain, Chicago, Station Hospital, Fort Sheridan, Ill.
MARKUS, Erwin H., 1st Lieut., Eloise, Mich., Replacement Center Dispensary, Camp Grant, Ill.
MARTINI, Henry F., 1st Lieut., Wausau, Wis., 5th Division, Fort Custer, Mich.
McCORMACK, Edward A., 1st Lieut., Niagara, Wis., 123d Field Artillery, Monmouth, Ill.
MIDDLETON, William D., Major, Hayward, Wis., Fort Sam Houston, Texas.
MOKROHAJSKY, Stephen M., 1st Lieut., Green Bay, Wis., Station Hospital, Camp Grant, Ill.
MYERS, William H., Captain, Coal Valley, Ill., Armored Forces, Fort Benning, Ga.
OXMAN, Emanuel M., 1st Lieut., Kankakee, Ill., Replacement Center Dispensary, Camp Grant, Ill.

POWELL, Harry I., 1st Lieut., Chicago, Replacement Center Dispensary, Camp Grant, Ill.
QUANDT, Eberhardt H., Captain, Rockford, Ill., Station Hospital, Camp Grant, Ill.
RAGUE, Paul O., 1st Lieut., Manchester, Mich., 5th Division, Fort Custer, Mich.
RANSOM, Gilbert T., 1st Lieut., Fairfield, Ill., 123d Field Artillery, Monmouth, Ill.
RECHLICZ, Ervin T., 1st Lieut., Milltown, Wis., Armored Forces, Replacement Center, Fort Knox, Ky.
REID, Wesley G., Major, Detroit, Armored Forces, Fort Benning, Ga.
RICHMAN, Samuel H., Lieut. Col., Rock Island, Ill., Station Hospital Fort Custer, Mich.
RUBOVITS, Frank E., Jr., 1st Lieut., Chicago, Armored Forces, Fort Benning, Ga.
RYAN, John A., 1st Lieut., Ann Arbor, Mich., Armored Forces, Fort Benning, Ga.
SEGENREICH, Harry M., 1st Lieut., Manteno, Ill., Armored Forces, Fort Benning, Ga.
SHEAGREN, John W., 1st Lieut., Rockford, Ill., Station Hospital, Camp Grant, Ill.
SMITH, Harvey S., 1st Lieut., East St. Louis, Ill., 123d Field Artillery, Monmouth, Ill.
SPIRA, Samuel B., 1st Lieut., Chicago, Armored Forces, Fort Benning, Ga.

STEINHOFF, Carl F., Major, Chicago, Letterman General Hospital, San Francisco.
STONE, Grant C., 1st Lieut., Berlin, Wis., Reception Center Dispensary, Camp Grant, Ill.
SUGAR, HYMAN S., 1st Lieut., Chicago, 5th Division, Fort Custer, Mich.
SWEENEY, Leo P. A., Captain, Chicago, Reception Center, Camp Grant, Ill.
TULSKY, Alex S., 1st Lieut., Chicago, Armored Forces, Fort Benning, Ga.
WALTER, Jacob, 1st Lieut., Chicago, Reception Center, Camp Grant, Ill.
WIER, John S., Captain, Fond Du Lac, Wis., Armored Forces, Fort Benning, Ga.
WILLIAMS, Francis R., 1st Lieut., Detroit, Station Hospital, Camp Grant, Ill.
WILLIAMSON, William P., 1st Lieut., Detroit, Armored Forces, Fort Benning, Ga.
WILTRAKIS, George A., Captain, Chicago, Station Hospital, Camp Grant, Ill.
WINKLER, Raymond J., 1st Lieut., Hilbert, Wis., Armored Forces, Fort Benning, Ga.
ZINN, August K., 1st Lieut., Battle Creek, Mich., Replacement Center Dispensary, Camp Grant, Ill.

SEVENTH CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Seventh Corps Area (North Dakota, South Dakota, Minnesota, Nebraska, Iowa, Kansas, Missouri, Arkansas and Wyoming).

BREDALL, Jerome Julian, Captain, Perryville, Mo., Camp J. T. Robinson, Ark.
DWORAK, Henry Louis, 1st Lieut., Omaha, Fort Ord, Calif.
HAGERBUSCH, Omer Ernst, 1st Lieut., University City, Mo., William Beaumont General Hospital, El Paso, Texas.
HARRELL, William Bedwell, Jr., 1st Lieut., Little Rock, Ark., Camp J. T. Robinson, Ark.
HOVER, Galen Monroe, Captain, Fort Riley, Kan., Fort Riley, Kan.
JONES, Otey Sherman, Captain, St. Louis, Fort Lewis, Wash.
KLOESS, Edward John, Captain, Leadwood, Mo., Jefferson Barracks, Mo.
LIPTON, MORRIS L., Captain, Rosebud, S. D., Fort Ord, Calif.
LYONS, Virgle E., 1st Lieut., North Little Rock, Ark., Fort Ord, Calif.

PERRINGS, Fred Selby, Major, St. Louis, Fort Omaha, Neb.
PHILLIPS, Bert Lee, 1st Lieut., Bauxite, Ark., Fort Ord, Calif.
PORTER, Alfred Lamar, 1st Lieut., Van Buren, Ark., Fort Ord, Calif.
QUICK, David William, Jr., 1st Lieut., Dayport, Minn., Fort Leonard Wood, Mo.
QUIGLEY, Maurice Werling, Lieut. Col., Minneapolis, Camp J. T. Robinson, Ark.

Orders Revoked

BARRY, Gerald Williams, 1st Lieut., Kansas City, Mo., Fort Ord, Presidio of Monterey, Calif.
BROWN, William, 1st Lieut., Paola, Kan., Fort Lewis, Wash.
DWORAK, Arthur Francis, Captain, St. Paul, Fort Bliss, Texas.
FELLMAN, Abe C., 1st Lieut., Omaha, Camp Murray, Wash.
LARSON, Marvin Oliver, 1st Lieut., Hawarden, Iowa, Camp J. T. Robinson, Ark.
OLSON, William Emanuel, 1st Lieut., Des Moines, Iowa, Fort Lewis, Wash.
WETRICH, Max Franklin, 1st Lieut., West Des Moines, Iowa, Camp Grant, Ill.

EIGHTH CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Eighth Corps Area. The Eighth Corps Area comprises the states of Colorado, Arizona, New Mexico, Oklahoma and Texas.

BEAL, Wendell E., 1st Lieut., Pearsall, Texas, Fort Sam Houston, Texas.
DAVIS, Frank Milton, Major, San Antonio, Texas, Station Hospital, Camp Wolters, Texas.
DUBOE, Sidney Harvey, 1st Lieut., Phoenix, Ariz., Fort Sill, Okla.
ETTER, Edward F., Captain, Sherman, Texas, Fort Sam Houston, Texas.
GADDIS, Herman W., 1st Lieut., Corpus Christi, Texas, Fort Sam Houston, Texas.
HUDSON, Isaac Frederick, Captain, Stamford, Texas, Fort Sam Houston, Texas.
JONES, William Edgar, 1st Lieut., Mesquite, Texas, Fort Sam Houston, Texas.
OSBORNE, Clarence Fred, Captain, Pasadena, Texas, Fort Sam Houston, Texas.
PATTILLO, Albert Dixon, Captain, Wichita Falls, Texas, Fort Sam Houston, Texas.

PHILLIPS, Clairice M., Captain, Levelland, Texas, Fort Sam Houston, Texas.
PRESTON, Thomas K., 1st Lieut., Mimbres, N. M., Fort Sam Houston, Texas.
ROBERTSON, David Lyle, 1st Lieut., Wichita Falls, Texas, Fort Sam Houston, Texas.
ROWELL, Robert C., 1st Lieut., Rusk, Texas, Fort Sam Houston, Texas.
SALLEY, Colvin W., 1st Lieut., Baytown, Texas, Fort Sam Houston, Texas.
STANTON, William Paul, 1st Lieut., San Antonio, Texas, Fort Sam Houston, Texas.
TRIPPET, Horace H., 1st Lieut., Waco, Texas, Fort Sam Houston, Texas.

Orders Revoked

ARMSTRONG, Hiram E., 1st Lieut., Pueblo, Colo.
FRIEDLAND, Joseph D., 1st Lieut., Denver.
HAYNES, Elmer, 1st Lieut., Rusk, Texas.
HAYNES, Henry M., Jr., 1st Lieut., Gatesville, Texas.
HOWARD, Robert Bruce, 1st Lieut., Oklahoma City.
IRELAND, Paul M., Captain, Pueblo, Colo.
McGLONE, Frank, 1st Lieut., Denver.
RIKLIN, Henry Hyman, 1st Lieut., Safford, Ariz.

NAVAL RESERVE OFFICERS RECOMMENDED FOR PROMOTION

The Secretary of the Navy has approved the report of the selection board which met on January 30 to recommend officers of the Naval Medical Reserve Corps for promotion to captain and commander.

Dr. Louis Henry Clerf, Philadelphia, was recommended for promotion to the grade of captain.

The following officers were recommended for promotion to the grade of commander in the volunteer reserve of the medical corps:

GENERAL SERVICE

FREYMAN, John Joseph, Omaha.
GERDINE, Linton, Athens, Ga.
IVES, Warren C., Rockford, Ill.
JACKSON, Harry H., Detroit.
KING, W. Ivan, Dallas, Texas.
McCARTHY, Donald, Minneapolis.
RYAN, Edward Raymond, Milwaukee.

SPECIAL SERVICE

BEAN, Harold Cotton, Salem, Mass.
BURK, Samuel B., New York.
CHANDLER, Loren Roscoe, San Francisco.
COFFIN, Whitman King, Boston.
CUSHING, Edward H., Cleveland.
JOSTES, Frederick A., St. Louis.
KANE, Howard F., Washington, D. C.
KNOWLTON, Don S., Washington, D. C.
LYON, George M., Huntington, W. Va.
McCANN, William Sharp, Rochester, N. Y.
McKENDREE, Charles A., New York.
NEILL, William A., Toledo, O.
POHLE, Ernst Albert, Madison, Wis.
POWELL, Lester Davis, Des Moines, Iowa.
RIVERS, Thomas Milton, New York.
SCHMOELE, John Moore, Los Angeles.
SNELL, Albert Markley, Rochester, Minn.
STEARNS, Albert Warren, Boston.
STRANGE, William Wyatt, Huntington, W. Va.
WESTCOTT, Henry H., Roanoke, Va.

ORGANIZATION SECTION

AMERICAN MEDICAL ASSOCIATION ON TRIAL

THE TRIAL OF THE CASE OF THE UNITED STATES OF AMERICA
VS.

THE AMERICAN MEDICAL ASSOCIATION, A CORPORATION, THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, A CORPORATION, THE HARRIS COUNTY MEDICAL SOCIETY, AN ASSOCIATION, THE WASHINGTON ACADEMY OF SURGEONS, AN ASSOCIATION, ARTHUR CARLISLE CHRISTIE, COURSEN BAXTER CONKLIN, JAMES BAYARD GREGG CUSTIS, WILLIAM DICK CUTTER, MORRIS FISHBEIN, THOMAS ALLEN GROOVER (DECEASED), ROBERT ARTHUR HOOE, ROSCO GENUNG LELAND, THOMAS ERNEST MATTINGLY, LEON ALPHONSE MARTEL, FRANCIS XAVIER MCGOVERN, THOMAS EDWIN NEILL, EDWARD HIRAM REEDE, WILLIAM MERCER SPRIGG, WILLIAM JOSEPH STANTON, JOHN OGLE WARFIELD JR., OLIN WEST, PRENTISS WILSON, WILLIAM CREIGHTON WOODWARD, WALLACE MASON YATER, JOSEPH ROGERS YOUNG.

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FEBRUARY 7, MORNING

(The Government offered a stipulation entered into between counsel for the defendants and counsel for the Government including the constitution and by-laws of the A. M. A. and the District Medical Society. The stipulation also included identifications of the organizations and defendants concerned; also memberships on staffs of hospitals and committees; also a description of Group Health Association, Inc.)

Evidence on Behalf of the Government

DR. HUGH CABOT

DIRECT EXAMINATION

Mr. Lewin:—Dr. Cabot has been called, your Honor, to give factual testimony as to introductory facts and also to qualify as an expert on certain matters that seem appropriate for expert testimony.

Hugh Cabot said in reply to questions that he is a surgeon, graduated from the Harvard Medical School in 1898 and served fourteen months in the Massachusetts General Hospital as an intern and was licensed to practice in 1899. Before he went into the Harvard Medical School, he attended the Roxbury High School and Harvard University, as an undergraduate. He was given an honorary degree of LL.D. at Queen's University, Belfast, Ireland, in 1925. He went immediately into practice as assistant of his cousin, the late Arthur T. Cabot, and then was appointed instructor in surgery at the Harvard Medical School. Then in 1904 he was appointed surgeon to outpatients at the Massachusetts hospital and went through the grades until he left Boston in 1919; surgeon to outpatients, assistant surgeon, and finally full surgeon. In the Harvard Medical School he was an instructor from 1902 until 1910; then he was appointed an assistant professor and then in 1918 clinical professor. He also practiced privately. He was surgeon to the Baptist Hospital from 1901 to 1919. In the World War he went overseas and joined the British medical service in 1916 and served throughout the war. He was mentioned four times in the dispatches and received the Order of St. Michael and St. George. Then he returned to Boston for a few months, and then in September 1919 went to the University of Michigan as professor of surgery, a full time appointment. Later, in 1921 he became dean of the medical school at the University of Michigan. As dean he was occupied, not only with technical matters of surgery but with school administration and the problems of students' educational requirements. "It took a great deal of time that I should have been glad to use for other purposes." In 1930 he went to the Mayo Clinic as one of the consulting surgeons.

Q.—The Mayo Clinic is the one that is the clinic out in Minnesota operated by the Mayo Brothers, the famous Mayo Brothers?

A.—Yes, sir.

Q.—And what was your capacity with that famous clinic?

A.—I was a consulting surgeon, which meant that I was called in consultation by the physicians in most of the general field of surgery. Most of my operative work was in the field of genitourinary surgery, now concealed under the name of urology.

Q.—But you are, Doctor, a general surgeon, and while you were at the Mayo Clinic you were a consultant in general surgery, but when you actually used the knife your specialty was genitourinary surgery?

A.—Yes.

THE MAYO CLINIC

Q.—Now, I wonder if fairly and properly you could describe the Mayo Clinic to this jury.

A.—The Mayo Clinic was, I suppose, the first private organization which brought together in a very small town, Rochester, a group of physicians, surgeons and specialists, beginning in a small way with Dr. Will and Dr. Charlie. They were the men who built it, or their father—they worked with their father for some years; and I believe the conception of a group, formal group, probably began about 1887. . . . You think of a hospital nowadays as an institution around which physicians in all the various fields are grouped. Here was something which started as a group of physicians, never did own or operate hospitals; which were operated by a separate organization. The Mayo Clinic never thought it was wise to involve itself in the operation, the business operation, of a hospital; though of course the hospital group and the Mayo Clinic were very closely associated. They continued to bring in from all parts of the country physicians from various fields. A good many of the men who were on the staff and remained on the staff were men who came there as youngsters, young physicians, in the capacity of what now would be thought of as interns; then remained on as assistants, and finally were taken on to the permanent staff. Later, when the organization became larger, they brought men from other parts of the country and to some extent from other countries. Then I think a very important development was the establishment there of a fellowship group, in which, under funds which had been saved from the operation of the clinic, they took on an increasing number of young physicians in all of the fields, who must have had not only their medical education but some hospital experience before they came to the clinic, and then remained for a period of three or more years on a meager salary but in theory at least enough to keep them alive; and they were candidates for an advanced degree, generally a master's degree in some field of medicine or surgery or the specialties. Some of them remained there for five, six or more years, and from that group in the later years the many of the members of the staff were selected. . . . The Mayos, being of British origin, were rather kindly to the British, and there were English and Irish and Scotch and many Canadians. . . .

Q.—What would you say as to the professional standing, capacities and reputations of the physicians who are employed in this group?

A.—I think they have enjoyed a good reputation. It would be a mistake to assume that all of the world's ability was centered in that institution, or anything like it, but on the whole they always had a very able, capable group of people.

Q.—How were they compensated, Doctor?

A.—Salary.

Q.—Were you compensated on a salary?

A.—Always.

Q.—And the same thing is true of your other distinguished colleagues there?

A.—Except a group which was always a little vague to us. There was a group of partners and it was a little doubtful just who some of the partners were. Some of us were rather curious. We never did quite know. Of course, the Mayos and some of their relatives, sons, sons-in-law, and so forth. But there were other members and I never did quite know how many partners there were, but it was a small number, and, for practical purposes, all of the physicians in that clinic were on salary.

Q.—How were you compensated when you were dean of the Michigan Medical School?

A.—Salary, flat salary, from the beginning, full time.

Q.—And when you were a professor of medicine at Harvard, Harvard Medical School?

A.—There we were paid chiefly in reputation, I guess. If I remember, I drew the princely salary of \$200. I may have been raised to \$500 at the end. But as far as money was concerned, it would just about keep you in cigars.

Q.—Do we understand, Doctor, from your testimony that you and your colleagues at the Mayo Clinic were engaged in what is known as group practice?

Mr. Leahy:—Your Honor, I object to that question. There is no definition of what group practice is.

Mr. Lewin:—If the Court please, Mr. Leahy discoursed at length to the jury on group practice yesterday.

Mr. Leahy:—If your Honor please—

THE COURT:—I am about to sustain your objection.

Mr. Leahy:—Thank you.

THE COURT:—He named this group. It isn't necessary to classify it.

Mr. Lewin:—Can we have the doctor give it this hideous name, though?

THE COURT:—Well, I don't want to select his language for him.

By Mr. Lewin:

Q.—Doctor, how would you name this practice you were engaged in at the Mayo Clinic?

Mr. Leahy:—I object to that, if your Honor please.

Mr. Lewin:—He would rather have the jury get it from him, if your Honor please.

Mr. Leahy:—Let him tell just what the Mayo Clinic was, how they operate.

THE COURT:—Just let him describe it. He has described the group in a general way.

Pardon me for saying the word.

(There was laughter in the courtroom.)

THE COURT:—Now, I will say to you folks, we want to conduct this trial in good humor and I don't expect it to be carried on like a funeral, or anything of the sort, but, nevertheless, I have my own ideas, which are such that I feel compelled to suppress anything in the way of laughter or outbursts. After all, there must be a certain fair degree of dignity in the conduct of the court and I must insist on it on the part of everybody present.

By Mr. Lewin:

Q.—Dr. Cabot, tell the jury, if you will, what advantages, if any, there were to the fact that you had there a gathering of doctors on a salary.

A.—I think if I may use the word "group"—and I think it is important to remember that the grouping together of physicians for the purpose of effective practice goes back a great many years. It may be said to have begun I guess with the early beginnings of the great hospitals. We saw them in Europe before we saw them here. There were gathered together, for the purpose of treating the indigent, physicians in all of the fields as they existed. In earlier days there was no great distinction between the general men and the special men, but they were gathered together in those hospitals for the purpose of effective treatment. I think we want to remember in the whole development of group practice it began there many years ago, in the great hospitals. Now, as far as my knowledge goes, the Mayo Clinic was the first group which you might call a private practice group. These great hospitals of course were not—the physicians and surgeons and specialists there were not in private practice while they were at the hospital; at least in the earlier days. In later days there were private physicians associated with these hospitals, but in the beginning they would work on charity patients and receive no compensation, no financial compensation; though great advantage of course in association with those institutions. Now, the Mayo Clinic, I think, is the first successful, eminently successful, attempt to bring together in a private institution a group which would cover all of the fields of medicine, surgery and the specialties and have there incorporated the necessary laboratories which are essential to the conduct of the great hospital organization.

Q.—Could they have consultations between themselves, the members of the salaried group?

A.—The advantage at the Mayo Clinic, or any of the clinics, is the same as at the great hospitals, that you have a very close relation with all your colleagues. In normal private practice it may be quite difficult to get hold of your colleagues, but in the hospital, and more so in the clinic, you can put your hand very readily on your colleagues in any field, and in the clinic, which was always chiefly under one roof, it was easy to obtain access not only to all the physicians and surgeons and specialists but men in the laboratory field, the bacteriologists, the chemists, with very great saving in effort and I think with enormous educational value. There in the hospitals, and even more so in the clinic, we all of us kept more or less abreast of the times in fields which were not our own particular fields, by constant contact with our fellows with whom we could talk lightly but very helpfully in keeping abreast of the times.

Q.—Mr. Leahy told this jury yesterday—

Mr. Leahy:—I object.

Mr. Lewin:—It is the basis for a question.

Mr. Leahy:—You are not going to make me the basis for anything.

THE COURT:—It is not the proper way to state the question. I sustain the objection without any discussion.

By Mr. Lewin:

Q.—Dr. Cabot, what have you to say about this, the statement that this expedient of practicing in a group was a new idea of social philosophy which sprang up in 1933?

A.—Oh, that is the time—the interpretation. The grouping for the purpose of more effective practice goes back for a great many years in the hospitals, and the Mayo Clinic, then the developments which took place as a result of the successful operation of that organization. A grouping could not be said to have begun at all recently. It is a more or less steady development tending to fit in with the development, economic, financial and, particularly, the development of medicine in its increasing complications.

Q.—Now, Doctor, I would like to continue a little bit more with your qualifications. Have you been interested not only in group practice but have you studied it?

A.—Yes, sir.

Q.—What kind of studies have you made of it, Doctor?

A.—Well, I have taken the trouble to actually visit and go over the ground with various samples of group practice, and then I have spent a great deal of time in studying their publications, the method of organization, not only in this country but other countries; though nothing precisely corresponding with group practice, I think we understand, is at all common in this country outside of the hospital.

Q.—Have you written any books?

A.—In that field?

Q.—In that field or any field of medical economics, if I may use that term, or the distribution of medical care.

A.—Yes, I have written two books, one published in 1936 under the title of "The Doctor's Bill" and another published in 1940 under the title of "The Patient's Dilemma."

Q.—And have you also written on scientific subjects in your own field of surgery?

A.—Oh, yes. Probably too much. The field of surgery and genitourinary surgery for many years.

Q.—Were you ever editor of any scientific paper?

A.—No, not a paper. I edited a two volume work on urology, known as "Modern Urology," the first edition in 1918, one in 1924 and one in 1936, I think, or 1935.

Q.—Have you had occasion to contribute to medical journals?

A.—Oh, yes. Many papers, sir.

Q.—Could you give the jury some idea of the number of titles you covered?

A.—The last time my titles were totaled up so they could be numbered, there were one hundred and fifty. That was probably some two or three years ago.

THE BOSTON ORGANIZATION

Q.—Doctor, have you had any experience in prepayment clinics where the patients who belong to the clinics are entitled to the medical services and pay regular dues in advance, and then are entitled to receive treatment from a group of doctors?

A.—Yes. At the present time I am working with a group of physicians who are arranging for the medical service of a corporation known as Health Service, Incorporated, in Boston, on a prepayment basis. And they arranged with a partnership of five physicians to plan for and arrange for the medical care to their subscribers, and I am the so-called medical director of that partnership.

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Q.—Let me be sure I get the picture. How long have you been connected with them as medical director?
A.—Well, in theory a year. We didn't actually begin to treat patients until last May.

Q.—Would you describe that undertaking a little more fully?
A.—The group was started by a group of people in Boston, none of whom were physicians but who were impressed by the fact that there was a considerable number of people in the community who, if they could obtain their medical care on a fixed prepayment basis, should be able, if the plans were worked out satisfactorily, to obtain their care within their rather modest incomes. These people were all lay people and represented the general public. After a good deal of study, of which I know nothing, they came to me among—along with four other physicians, and asked us if we would undertake to plan for the medical care. We agreed and a partnership was formed of five physicians. Do you care to have the names?

Q.—No, I don't think that is necessary.
A. (continuing).—who represented medicine, obstetrics, surgery and diseases of children. They undertook to arrange for a planned medical care and to associate with themselves other physicians. I think perhaps the most striking thing about this organization was that from the start we tried very hard to get this thing to work with the least possible disturbance of the normal arrangements of private practice. What I refer to is the associated physicians, of which there is a considerable group, to carry on their private practice and to see their other patients. Health Service, Incorporated, as they see their other patients. It was our notion that if a sufficiently large group of physicians was included, in this way they would be able to do this work without disturbing their normal relations and thus fit into the present though probably changing pattern of medical practice.

Q.—How did the partnership which composed the professional group receive its compensation?
A.—As partners there we received no compensation; let us say, for our administrative work. In so far as these partners act as consultants, they receive their compensation just as do the other physicians. They are on exactly the same basis.

Q.—Is there a contract in existence between the medical group on the one hand and the business side on the other?
A.—Oh, yes. It is an imposing document; which doesn't mean anything to me at all.

Q.—Would you say by reason of that you were engaged in contract practice?
A.—I would suppose so, the perfectly definite contract between the corporation and the partnership.

Q.—Now, can you describe the group of patients which you serve and the extent of care which you attempt to give them?
A.—We undertake—

Mr. Leahy.—Pardon me. I want to say for the record we will admit the doctor gives the very best of care in the world to his patients. In the economy of time, I don't know why it is we are going so far afield.

Mr. Lewin.—The reason we are going into this is partly because of Mr. Leahy's opening statement. This gentleman is to be qualified on group practice and on prepayment plans and he is going to state the advantages of it.

THE COURT.—Mr. Leahy was stating his defense. You are now proving your case in chief. It isn't the usual time. I will give you a chance in rebuttal.

Mr. Lewin.—Your Honor, the indictment lays the foundation for just this testimony.

THE COURT.—That may lay the proper ground. Mr. Leahy's statement was his defense.

Mr. Leahy.—Your Honor, the indictment gives nothing about Dr. Cabot's service.

Mr. Lewin.—Oh, yes. All of that has been fully argued.

THE COURT.—Well, I don't care. But we have a long trial before us at the best and we don't want to go any further afield than is necessary. It seems to me the doctor's knowledge of this one particular institution is hardly relevant.

Mr. Lewin.—He is going further, your Honor.

THE COURT.—Well, put another question.

Mr. Lewin.—Your Honor's ruling is that he cannot describe the group in this particular thing he has had experience in for years?

THE COURT.—I will permit it if you will do it differently. May I suggest, without any criticism of the doctor, that he answer that question and then not go off into other matters. If you will put your questions so as to keep things going, we will probably save a little time.

By Mr. Lewin:

Q.—Dr. Cabot, will you tell this jury briefly the character of the group that is served, the patients, and the extent of care that you attempt to give them?

A.—The group is limited only by the statement in the agreement between the corporation and the subscriber that the family income shall not exceed \$2,500. There is no other limitation. The great thing is complete medical care, including special care when that is necessary, but not including hospital care which he could obtain in any other way.

Q.—Do you give them a physical examination before admitting them to treatment?
A.—There is admission by groups and as individual subscribers. The individual subscribers are required to have a physical examination. The groups are not.

Q.—Can you tell the jury the purpose of requiring the physical examination?
A.—To be sure that we get a reasonable cross-section of the community and do not become overloaded with people who are already ill, old or what the insurance people call bad risks.

Q.—Doctor, tell the jury something about your membership in medical societies, will you?
(Dr. Cabot listed his memberships.)

Q.—Are you still a member of the American Medical Association?
A.—Oh, yes.

Q.—Have you ever participated in the affairs of the American Medical Association?

A.—Yes. I was a delegate from Massachusetts to the House of Delegates. I am a little vague about it; I think it was about 1910 or 1911, though it may have been 1911 or 1912. Then I was the chairman of the Section on Neurology in 1916, but unfortunately I was overseas in that epochal disturbance and did not serve.

Q.—Dr. Cabot, with that background of experience I am going to ask you if you will describe to this jury the extent and care of medical and surgical practice around the time when you began. Later I am going to ask you to contrast that with the character of medical practice and surgery practice as of today. First, will you describe generally the character of medical practice some decades ago?

(Dr. Cabot described exhaustively the difference between medical practice 1890-1900 and that of today.)
Q.—Will you describe the typical physician's equipment of those days?

A.—It was very much simpler than it is today. The origin of the black bag was so commonly associated with the practicing physician—he had to have a relatively small number of drugs; he had his thermometer; he had his stethoscope. If he were doing obstetrical practice he might keep in his bag his obstetrical equipment, or he might take it only when he was actually going to use it. It was common for physicians of that day to carry a little surgical case which contained some forceps and a knife or two, some ligatures and scissors with which he could do small emergency operations. But a relatively simple equipment would enable him to deal with most of the situations that he was faced with.

Q.—Was the use of x-rays for diagnosis common then?
A.—Oh, no, sir. It began in my day in the medical school, and it was still in the experimental stage until—well, after the turn of the century.

Q.—How extensive was the knowledge of diseases and how extensive was the treatment that was accorded to disease after it was found, in those days?

(Dr. Cabot then contrasted diagnosis and surgery in the two periods. In reply to questions he defined the basic sciences.)
Q.—Can you compare these advances in these various sciences in the last four decades, let us say, with advances in such sciences and in the care of health preceding that period?

A.—Well, it is possibly true that the advances in the last forty years have, in their net value, been almost equal to the bulk of previous knowledge.

Q.—Where does that leave the modern doctor, Dr. Cabot? Are you able to carry on a busy practice and to have accurate knowledge of all these modern sciences in their application to the treatment of diseases?

Mr. Leahy.—Pardon me, Doctor. I will have to object to the form of the question, if your Honor please, because we really do not know what he seeks to elicit. He says "Are you able?"

Mr. Lewin.—I would like to know whether he is able, and then I will go a little further and ask him if anybody else

THE COURT:—If it is to be followed up, I see no harm in it, Mr. Leahy.

Mr. Leahy:—Are you reframing the question as to whether the doctor is able—

Mr. Lewin:—If he is not able, I don't know anybody who is.

Mr. Leahy:—I am happy to hear you talk, and I will listen.

Mr. Lewin:—You are going to hear a lot.

THE COURT:—Let us get along.

The Witness:—The mass of knowledge which should be available for the treatment of disease is today entirely beyond the grasp of any one person. It was possibly within the grasp of the physician half a century ago, but increasingly it has become impossible for any one physician, particularly if he is engaged in reasonably active practice, to have even a bowing acquaintance with many of the special developments which are of real importance and essential importance to the patient.

SPECIALIZATION

By Mr. Lewin:

Q.—Would you describe to the jury the extent that specialization has entered the field of medical and surgical practice now?

A.—It is very great and it is steadily increasing. Today we have among the specialized people the general consulting physician and the general consulting surgeon. Forty or fifty years ago they could fairly well cover their respective fields, but now the specialists in the subdivisions have made that impossible. There is probably no general consulting physician today who does not require the services of experts in their fields. Experts in diseases of the eye, ear, nose and throat are common enough. Experts in diseases of the heart and lungs, experts in diseases of the gastrointestinal tract and experts in diseases of bones and joints. Then, on the surgical side the technic of surgical operations has become so developed that it is almost impossible for any one surgeon to cover the whole field, even leaving out the special senses. So that the general surgeon or the general physician today requires constantly advice from his more specialized brethren.

Q.—Does he require consultations?

A.—Yes.

Q.—Now, has there been any change during that period in the way in which specialists are made?

A.—Yes. Forty or fifty years ago, as the specialties began to develop, there were always people who had been engaged in general practice and then found there a liking to develop a narrower field. That was chiefly made possible by their work in the great voluntary hospitals. But until relatively recently, twenty years ago, most of the specialists had been general practitioners in one branch or another. But more recently the length of time involved in medical education has become such that if men left medical school and the hospital and then went into general practice, and then, having had a view of the field, went back to train themselves and be trained as specialists, they would be almost middle aged before they got back. So it is not very feasible.

Q.—So that you would say it is now common practice for a man leaving his university to enter at once into a specialty without going through the general practice?

A.—Yes; it is very common practice. They commonly take one or perhaps more years in a hospital, in the general field. Then if they propose to practice general medicine they will carry on another year. Otherwise they will begin at that point commonly enough to train themselves in a special field, which frequently runs from three to five or more years.

Q.—What, in your opinion, is the chief cause for this great increase in specialization?

A.—The increase in the essential knowledge. You could not possibly go on without specialization. Of course that is in no way peculiar to medicine.

Q.—Doctor, I wonder if you could tell us of the advances, if any, there have been in the education of doctors and in educational requirements that one must fulfil in order to be a doctor?

A.—At the time I graduated, in 1898, at the Harvard Medical School, which was one of the older and well thought of medical schools, there was only 10 per cent of the students that had any college education at all. The great bulk of the students came to the medical schools of the country, in the middle nineties, from high schools. About the time of my graduation, or within a few years, various universities began to require more or less college work, and the thing went on, not steadily but progressively, up to the present time, where all of the recognized medical schools of the country require at least two years of college work before they will consider a candidate for the medical school.

A large number of medical schools take four years of college work. There is another group, mostly, I think, in the state universities, which have a combined degree. They can take three years in a literary college and four years in the medical school and get a baccalaureate degree and a doctor's degree. So at present it has come about that, while a student may be a candidate for a medical school with only two years' college training, the majority, I think well over 60 per cent, or perhaps more than that, have either four years of college work or this combined degree, so that they take either seven or eight years before they obtain their degree in medicine. Then you will have to add to that the requirement of many states, which is accepted by practically all students, that they shall have some hospital experience. Many states require that before admitting students to examination for license. That practice is increasing, so that at the present time many students may spend nine or ten years in preparation for their life work.

Q.—What is a graduate doctor usually called when he is gaining his initial hospital experience?

A.—They are called interns during the earlier time. Then, as they carry on, after they have been with the organization a year or two, they are often spoken of as residents. In any case they reside more or less at the hospital.

Q.—What can you tell the jury in regard to the extent of equipment that a modern doctor must have, contrasted with what he had back in the days of the little black bag?

A.—Well, he must have, or have access to, all of the methods of modern diagnosis. In the earlier days perhaps he did his own laboratory work as far as it was necessary, made simple examinations of the urine and of the sputum. Today there are very few physicians who do that. They must have access to a laboratory either at the hospitals with which they are associated or a private or commercial laboratory where these examinations are done for them. But if they are in normal private practice and treating patients in their offices they require more equipment than was required in that earlier day, particularly because of methods of accurate diagnosis requiring electrical gadgets, and so forth, which are very assential to accuracy. But, unfortunately, they are very expensive.

Q.—I was going to ask you if an x-ray machine is an expensive piece of equipment.

A.—Oh, very. But very few private practitioners would be required to have an x-ray machine. They would use that of an expert in the vicinity.

Q.—Do I understand, then, that they would send the patient to another doctor who has an x-ray machine?

A.—Yes.

Q.—Could a number of doctors use the same equipment feasibly?

A.—Oh, yes. That is one of the important points in the grouping together, which goes back to the days of hospitals when one set of physicians used the rooms in the morning and another set in the afternoon. In any group you can consolidate office space and save enormously on equipment, and you can make the office space and the equipment work eight or ten or twelve hours a day instead of having a three or four hour day. Great economy there is possible.

Q.—Could they, by the same token, economize in having a common laboratory and common technicians to operate the laboratory?

A.—If the extent of their work is sufficient there are great possibilities to be obtained there in the saving not only of time but of expense. A well organized clinic, such as the Mayo Clinic, though there are many others, is likely to have its own laboratory, and they can get their laboratory work done not only more promptly but equally as efficiently and much more cheaply by keeping the thing working a twelve-hour day.

Q.—What kind of equipment, generally speaking, would a clinic need in order to render complete medical care except for the hospitalization?

A.—Assuming that they did not use the hospital laboratory, they would have to have the laboratories of pathology and bacteriology and medical chemistry available at their hands. If their association with the hospital was quite close they might use the same organization.

HOSPITAL ORGANIZATION

Q.—I wonder if you could describe briefly to the jury the way in which the modern large hospital is run and how it is governed and of what it is composed?

A.—Normally the hospital is run by a board of trustees who are laymen. If it is a tax-supported hospital, a municipal hospital of any kind, it may have an elective board or it may

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be an appointive board. But the governing board is, as a rule, a lay board, sometimes with one or more physicians to advise the board on details. They then must have an administrator. He used to be known as a hospital superintendent. I think they now like to be called a hospital administrator—whose business it is to carry on the complicated machinery, because in some aspects a hospital is a hotel on one side and a highly technical medical job on the other. The appointments to the staff are ordinarily made by the governing board.

Q.—Appointments to the medical staff?
A.—To the medical staff; yes. But of course the administrator will have to have his assistants under him. The medical staff is ordinarily appointed by the governing board with a varying amount of advice from the administrator.

Q.—Who directs the purely medical affairs of the modern hospital?
A.—The staff.
Q.—The staff of doctors?
A.—Yes. They are divided up as a medical staff and a surgical staff. In large organizations both of those staffs will be subdivided under the specialties, and those staffs will have their own group meetings.

Q.—You are speaking of what is known as the regular or attending medical staff?
A.—Yes.
Q.—Does the hospital today usually have another medical staff?

A.—Yes; a relatively modern development and one of essential importance is that they have a regular staff whose responsibility for the care of the patients who are indigent or partly indigent and who are a direct charge against the trustees of the hospital for whose care they must provide. Then they commonly have what is often termed a courtesy staff. That is to say, physicians who have no duties in the care of charity patients, but who bring their own patients to the hospital and for whom the hospital must assume some responsibility in regard to their capacity and abilities.

Q.—Both of those staffs, I take it, are elected by the lay board of trustees usually?
A.—Yes; though I suppose in practice the members of the courtesy staff are picked out by the regular staff and recommended to the trustees, and the trustees, I take it, would hardly concern themselves with matters of which they could have little knowledge.

Q.—Generally speaking, is it difficult for a graduate doctor who has been in practice and who has had internships and that sort of thing to get courtesy staff privileges at hospitals?
Mr. Leahy:—I object to that question, if your Honor please. I do not think that is a proper subject for expert testimony.

THE COURT:—Will you repeat that?
Mr. Lewin:—I asked Dr. Cabot as an expert whether, in his opinion, it was a difficult thing for the ordinary graduate physician who had internships and that sort of thing to get a courtesy staff privilege at the hospitals.
THE COURT:—He may answer.

Mr. Leahy:—Exception, if your Honor please.
A.—No; hardly a matter of difficulty; but yet the extraordinary situation prevails the country over by which a physician licensed to practice by the state or territory, as the case may be, is still excluded from hospitals. That is, I think, a most unfortunate condition, because today I think it may be stated dogmatically that it is impossible for a physician to give the best medical care if he cannot take his patients to a hospital. He can, of course, send them to a hospital with a break between him and the patient; the patient goes to the care of somebody else. It is a very anomalous situation by which a physician, many physicians, licensed by the state, authorized by the law to practice medicine and surgery, can still be excluded from the use of a hospital without which their practice is not as good as it could be. It is very serious, I think.

By Mr. Lewin:

Q.—In your opinion, what should be the standards that should govern the admission of a doctor to a hospital, who is licensed and has had training?
A.—I see no avoiding the conclusion, Mr. Lewin, that every physician licensed by the state must be assumed to have the capacity requisite in a physician, and that he ought therefore to be potentially a proper person to have on the staff of any hospital. It must always be true that there are second-rate and incompetent people in the medical profession, just as there are in any other field. But I think they should be selected for any hospital staff by a method of trial and not excluded for any reason whatever. To undertake to say that a given physician is not a competent person to be admitted to a hospital for the

care of patients seems to me to run counter to the fact that the state has given him a license to practice medicine. Then another organization, not a state organization, undertakes to say that he may not do so in the most efficient way. I think the selection and the exclusion of the incompetents should be made by admission to the hospital staff, then bringing them along, if they are younger men, as all younger men are brought along, under the supervision and advice of their elders, and with the possibility that they are incompetent or dishonest, of excluding them. I do not like the notion that there can be physicians licensed by the state who are forbidden to practice medicine in the proper way.

Q.—After you have given this licensed physician a trial, I understand you to say that you would exclude him if he turned out to be incompetent?
A.—Yes.
Q.—Or dishonest?
A.—Yes.

Q.—Are there any other standards that ought to operate to exclude him?
A.—Oh, I think so. I think that many physicians applying for a hospital will be people of limited ability; that they should be admitted to the staff only to do the more simple things. Take the surgical staff, for instance. They should at the beginning be allowed to do only the more simple and safe operations. As they go on demonstrating their capacity under the supervision of the senior staff they should be allowed to do more and more. For some of them there would obviously be a limit beyond which they ought not to be allowed to go; they are not of the caliber that can take on the difficulties and responsibilities and the tragedies of major operative specialties, for instance. They are not built that way. But they ought to be allowed in the hospital to do those things for which they have demonstrated a capacity.

Q.—Those standards you have described go to the professional ability of the men?
A.—Yes.
Q.—What ethical requirements or standards should there be, in your opinion?

A.—I suppose, the ethical requirements of the general population. You don't want a crook around the hospital any more than you would want him anywhere else. A person who cannot live up to the ethical standards of society is no person to have around a hospital.

Q.—Are you defining ethics in answer to that question, Doctor?

A.—As rules for the conduct of life, sir.
Q.—Does it have a moral significance?
A.—Oh, very clearly.

Q.—Does it embrace economic views or practices?
A.—Oh, I don't see how it could. I may believe in free silver, but I don't think that that makes me necessarily a good surgeon.
Q.—Or necessarily not a good surgeon?

A.—No.
Q.—Has there been any increase in the use of hospitals in this period of four decades that we have been discussing?

A.—Oh, very great. I can use my own experience. When I was first practicing with my cousin we practically did no operations on private patients in hospitals. They were all done at patients' homes. His charity patients he saw every day at the hospital, but not his private patients. The operations were time consuming because we had to prepare for them. We invaded the house with assistants and the nurse and largely disrupted its economy and did a good deal of damage to it on a fact, was that you were turning the house into a hospital. As people became less fearful of hospitals and the whole performance took a great amount of time. What was happening, got rid of the notion that hospitals were places where a good deal went in and a good deal less came out, they found it was better economics to hire a piece of the hospital for the purpose rather than to turn their homes into a hospital. And today severe illnesses and surgical operations, except the more trivial ones, and a great deal of the obstetrical work is done in hospitals, because it is better done there. The physician and the surgeon have the equipment at hand and there is a saving of expense as well as a saving of time. Of course, not long before the days that I am telling you about, hospitals were the most dangerous places in the world for surgical and obstetrical operations. Even in our early days our incidence of infection was considerably less in private homes than it was in public hospitals.

Q.—Now, Dr. Cabot, you have told us of the longer period of education that is required in these days in comparison with the former days when you came to the profession, the expensive diagnostic and therapeutic equipment that is now necessary, the longer and more accurate diagnosis and treatment accorded in these days, the increase of specialization which you say has resulted and the increased use of hospitals. What have you to say about whether or not the cost of adequate medical care has increased during this period that we have been discussing?

A.—Of course it has. It has increased enormously and inevitably. What the patient is getting today is something that is enormously better but, inevitably, much more expensive than he got or could have gotten forty or fifty years ago. The cost has risen with the improvement.

SERVICE TO VARIOUS GROUPS

By Mr. Lewin:

Q.—And would you just state briefly the basis for that opinion?

A.—Well, I suppose my own experience; what I know from observation as to the costs of care at an earlier day and what I know as to it now. At an earlier day where there was illness sufficiently serious to require hospital care, the hospital charges were not high; as a rule considerably lower than today. There was less special nursing which today has become very expensive; there was less expensive medication. Just as an example, in some diseases, pneumonia for instance, in its treatment today, oxygen may be required which might become very expensive; come to several hundreds of dollars for a case of pneumonia. And then there are the laboratory investigations and studies, of which x-ray is typical. You must have x-rays and inevitably they are one of the most expensive features. So that the hospital cost of hospital care is very much greater. Now, the cost of care to patients who are not required to go to the hospital has risen only in the nation to the fact that the physician himself is under greater expense. What you may call his overhead expenses are very much greater and, obviously, he must collect from his patients enough to pay him a reasonable income.

Q.—Then if you have to use more than one physician, the person who uses those physicians has to pay multiple fees?

A.—Yes, and for consultations; consultations today are and should be very much more numerous than they were, and each one of these people must be compensated. The consultant having special knowledge and seeing a great deal fewer patients must have more for the consultation than the physician who sees the patient in his office; and therefore the charge for consultants, if they are used to the full extent that it is to the interest of the patient to use them, enters very largely in the bill.

Q.—I think you testified that group practice plan, the one with which you are associated, limited its membership to persons with family incomes of less than \$3,500 a year; is that right?

A.—Yes.

Q.—Have you in your studies and writings on these subjects had occasion to explore the question of the effect of these increased costs on groups enjoying that amount of income?

A.—Will you repeat that, please?

(The pending question, as recorded, was read by the reporter.)

By Mr. Lewin:

Q.—That is, less than \$3,500 a year for families?

A.—Yes.

Q.—What effect have these increased costs had on the amount of care those people received?

A.—Of course, that category is composed largely of people of considerably less income than that. I myself believe that it is very difficult for the patient with a family to obtain and pay for adequate medical care today on those salaries on the fee-for-service basis.

Q.—What is the fee-for-service basis?

A.—It is that whereby each physician who gives advice in a given case charges his own fee and sets it at what seems wise and proper to him. It is a service wherein each piece of work is paid for.

Q.—What must the person with that income then do in order to get so-called medical care?

Mr. Leahy:—In his judgment.

Mr. Lewin:—Yes, in your judgment, Doctor.

The Witness:—He has three choices in meeting these expenses which he cannot pay. And I was interested to learn recently that in New England over 85 per cent of all moneys loaned by the small loan people was for unpaid doctors' bills.

It showed that these were a very large item. Now, he may do what a great many people certainly do, ask for and obtain less medical care than he feels would be desirable and is in fact desirable, or, he may more or less throw himself on the mercy of his community and accept charity. Now, unless there is provided some other method he is in a bad fix, I think, anyway.

Q.—What other method occurs to you whereby adequate medical care could be provided for that man?

A.—Oh, the method with which I have been so much concerned for many years. That is, a prepayment basis, whereby a considerable group of people band together, make a regular payment on a monthly or other basis they think fit, and then engage the services of a group of physicians for whom this group of consumers, as we call them, can supply a definite income. The subscriber knows how much money it will cost him, he knows how much money he will have and how much money he can pay. Now, if the group is of sufficient size the thing will work in such a way that entirely adequate and very good treatment can be delivered that could not be delivered by a smaller group, but what happens in practice is that the fortunate man who happens to have a little illness in his family pays for the unfortunate man who happens to be badly stricken with unpredictable illness. It smooths out. This practice has the outlines of an insurance feature, though it is not technically insurance as such.

Q.—Why do you say illness is unpredictable?

A.—Because I think you are in the hands of an all-wise and unscrupulous Providence. I don't know how to predict it.

Q.—What is meant by the term "unforeseen incidents of illness"?

A.—This very thing: nobody can tell when your boy of 17 will go out and hit a telephone pole. It is quite unpredictable when that will happen but not uncommon.

Q.—And now, what experience have you had, and what studies have you made, of these prepayment plans, whether they go along with group practice or not, such as you have just described.

A.—Well, in regard to some of them I have actual knowledge by having studied organization and seeing it work, so far as one can understand such things. As regards the others, by study of publications showing how many subscriptions or subscribers they have, what is the nature of their staff and what is the evidence that care on a statistical basis is complete or incomplete, along that line, et cetera. So that as to some I have personal knowledge or its equivalent; as to others it would be dependent on the accuracy of the publication.

THE ROSS-LOOS CLINIC

Q.—Doctor, will you tell the jury which of these plans you have had actual experience with?

A.—I have been very much interested in the Ross-Loos Clinic, largely because it was one of the earlier experiments if not the first experiment of its kind in this country. It was an experiment in the beginning; it is no longer, it is and was on a prepayment basis; and then I watched and have seen over a considerable number of years how—

Q. (interposing).—Now, Doctor, I would like to have you spell the name of that clinic.

A.—R-o-s-s (a Scotchman) and L-o-o-s (a native of California); he may have been descendant from the Indians, so far as I know.

Q.—They are the doctors who founded the Ross-Loos Clinic?

A.—Yes, and they added certain partners to the group as time went on; but still the great majority of the staff is on salary.

Q.—Could you tell the jury a little more about the development of the plan and whether it has had any success or not?

A.—Yes, it was started on the assumption that the world consisted of certain groups of people, and that in the city of Los Angeles there would be those who would be glad to get their medical care by paying so much a year for a guaranteed complete care. It began in a small way. I can't quite recall what group they took in but they insisted from the start that they would deal with groups only, and one of the earlier groups was of teachers; then there was another similar group, and a group of postal employees; and then they went into the various commercial fields. But they insisted from the start they wouldn't take individual subscribers but only people who represented a percentage of an employed group. The subscriber must be employed. He may then bring in his dependents on a very much reduced rate but not the same rate which he paid, but it is for a family of known size—they sometimes remain known for a time—that it is figured about what the net cost will be. Their plan, I think, from the start included hospital care. They had a hospital which they did not own but which

they supplied with patients in such an increasing number that they had a majority of the patients in the hospital; they may have the whole of it.

Q.—By giving the hospital those patients they defrayed the expenses of the hospital, but the hospital remained a local private institution?

A.—Yes. For a good many years they used only one hospital, and I think they had some working agreement with that hospital that all patients would go to that hospital. Now, the thing has spread over a very large area; the city of Los Angeles reaches over a wide area, for miles and miles. They have substations too, now, where they have a physician and a nurse, and a regional office, and patients may go there with conditions that do not require complicated treatment. In other words, it is almost the situation of the general physician, only he is part of the organization and on a fixed salary income. Very early, I think almost at the start, they built themselves a clinical building so that they would have, as has the Mayo Clinic, all their organization collected in one place, so that now although it is spread out into the surrounding country all the important difficult work is done in the clinic building.

Q.—Has this prepayment feature sprung up as a development in social philosophy only since 1933?

A.—Oh, no; the theory of prepayment, of course, goes back into the days of the British Friendly Societies; has been going on for more than a century. It was evolved in cases of large practice, and the principles and theory is present in the various forms of contracts for medical care in this country and elsewhere, and, on the whole, which did a pretty poor job; but the theory of prepayment is very old, not at all new.

Q.—Has the Ross-Loos Clinic been successful?

Mr. Leahy:—In your opinion.

Mr. Lewin:—Yes, in your opinion.

The Witness:—Yes.

By Mr. Lewin:

Q.—What kind of professional reputation has it now with regard to the care that it renders?

A.—Well, of course, that becomes a matter of opinion. I find that many physicians in the neighborhood are inclined to be critical. I find that physicians who come from a distance and stay there and observe their work are inclined to the view that it is very satisfactory. I include myself in that group and think that the care given is, on the whole, something better than good care. Of course, there is prejudice, perhaps, on both sides. I think, on the other hand, that you can rely on the growth of the organization as evidence that they must have been providing a pretty satisfactory article or they would have failed to grow as they have. They are approaching a point now in their growth where I think they would be well advised to take no more patients. I believe there is a size to which any organization can grow where they might get themselves into administrative difficulties which would be very serious.

Q.—What have you to say of the ethics of a doctor who would accept a salary from such a group?

A.—There could be no ethical objection; there couldn't possibly be an ethical objection. The whole civilized world is on salary, 90 per cent of them, anyway. I don't understand that you gentlemen are unethical because you get paid a salary.

Mr. Leahy:—We are lucky when we get paid.

The Witness:—I think so myself. I was on a salary for twenty years until recently myself.

By Mr. Lewin:

Q.—Now, how about being on a salary with a prepayment group: Is there anything unethical about that?

A.—Why, no, of course not. You may think you are gambling, that you may not get your salary; but that is true of all of us. That has nothing to do with ethics; there is nothing unethical about it, certainly.

Q.—What other groups have you had personal acquaintance with?

A.—I have had some experience with the Trinity Hospital group of Little Rock, Ark., which is one of the oldest organizations of its kind in the country. I am not quite sure whether its beginnings preceded the Ross-Loos, but it is a matter of ten or more years ago since it was organized, in any event. I have been interested in observing the success of the organization and it is my opinion that it is extending very good service to those who are treated. And if you can make a thing work in the State of Arkansas it ought to work pretty nearly anywhere.

Q.—And did it work there?

A.—Yes, and it has been for some time rendering satisfactory service.

Q.—And has that both these features: group practice and prepayment, with salaried doctors?

A.—Yes.

Q.—Now will you tell us something about the operation of any other group with which you are acquainted?

A.—Well, there is the Stanacola.

Q.—Where is that, and what is that plan?

A.—In Louisiana, at one of the big plants of the Standard Oil Company; and there the initiative came from the employees in the form of a group which made arrangements to obtain medical services. I am not quite sure, of course, just what part the Standard Oil Company played in organizing the group. The Standard Oil Company, and many other great corporations, have a medical organization for their whole organization, all their various activities; but, as a rule, it is their business to look out for the industrial feature of the company's activities and see that proper care is rendered in industrial compensation cases. But I am not quite sure that some of the officials of that company didn't suggest the plan. Here was a method, the solution of a problem which the companies did not want to undertake. The company, I think, assisted them more or less with the payment of rent and the furnishing of quarters, et cetera, things like that.

Q.—What would be the reason for a company assisting a group of employees in forming one of these medical groups?

A.—There are a good many companies who believe that the really complete and satisfactory care of their employees is to their own interest. Some companies have provided that care without any charge to such employees.

Q.—And would you say there had been a development in recent years toward more and more businesses encouraging plans of that character?

A.—Well, it would be very hard to say whether it was encouraged by the corporations or businesses or whether the initiative came from the people who were employed. Obviously, there must be a pretty large number of employees or this thing cannot be made to work satisfactorily.

Q.—Doctor, what is preventive medicine?

A.—Preventive medicine is that part of the practice of medicine which undertakes to prevent the occurrence of diseases. For instance, it is highly possible to assure that no child or adult would ever have smallpox, simply by vaccination. That is the old preventive. And from then on, the prevention of typhoid fever by inoculation. That was first proved in the Boer War, in 1888 and 1889. That was not known to us because our losses during the Spanish-American War from typhoid were staggering. And some time later, lockjaw tetanus, and then the prevention of diphtheria. It became possible around the early part of this century. Those are notorious examples of preventive medicine, so that diseases which used to take a very large toll of the population now take a very small number, and could take no toll at all, if preventive medicine was entirely carried out for all people.

Q.—Now, if one of these groups undertook to give complete medical care, would the employee or member have the right to this preventive medicine?

A.—Yes. That is one of the features of the prepayment plan, and I think, one of the most important.

Q.—Would you regard that feature as an asset to the employees of the company who were in such group?

A.—A very great asset.

Q.—Why is it an asset?

A.—Because the problem of employees being regularly present on the job is increasingly becoming important, and the employee's value to his employer is recognized as being in proportion to the man's ability to avoid loss of time through illness. That is as to the man himself. Now if the employee is worried because his children are sick that does not add to his ability as an effective worker. It doesn't make him do a good day's work.

Q.—What other groups can you mention, successful groups, of this character?

A.—Of course a group which has been going on for many years is the Endicott-Johnson Company in Binghamton, N. Y.

Q.—What is that?

A.—They make shoes; and for many years, fifteen or more, have offered to their employees complete medical services, for which the company has paid; and they regard that as a good piece of business. It looked pretty expensive to me but very large proportion of the employees use the service, although they are under no compulsion to do so.

Q.—So you would say that there are, if I may say, some producer organizations in these groups and some consumer organizations in these groups?

A.—Yes, as I use the word, "producer" is an organization set up primarily by physicians, like the Ross-Loos group, in

which a group of physicians decided to group themselves and offer to the community medical care on a prepayment basis; then what I call the consumer basis is one in which the initiative comes from the consumer, commonly known as the patient; a quasicorporative arrangement in which a number of individuals form an organization and then proceed to enter into an agreement of some kind with a group of physicians to provide medical care. Those are the two methods by which the thing may be started; and, more or less in the middle, is the industrial establishment for the care of its employees and sometimes for their dependents.

Q.—Reverting now for a moment to the proper standard for admission of doctors by a hospital to its courtesy staff, would there be any reason, in your opinion, for rejecting a doctor to the courtesy staff simply because he was identified with a prepayment plan?

A.—Oh, no, that would be very improper.

Q.—Now, would admission for the patients of these groups to hospitals be an important thing?

A.—Very important; it is essential. No group can properly offer medical care who cannot also assure the provision of hospital care.

GROUP HOSPITALIZATION PLANS

Q.—Are you familiar at all with a group, just a group hospitalization plan?

A.—Yes; they have been developing all over the country in recent years.

Q.—Is there any similarity between the group hospitalization plan and one of these medical groups you have been describing?

A.—Some similarity and some differences. The group hospitalization plan is an arrangement by which the corporation accepts subscriptions and then agrees with the hospital, or a hospital in the vicinity, to hospitalize and accept its patients as hospital patients for a fixed sum per diem for a certain amount of care. For instance, you may have a ward bed at a certain rate; you may have a bed in a three bed room at a certain rate, and so on. Most of those with which I am familiar do not undertake to provide private room care, though you may get it at a moderate additional charge.

Q.—Then a group hospitalization plan provides this insurance feature, or a feature like insurance?

A.—Yes, for hospital care only. It has nothing to do with medical care.

Q.—Is it possible for one of these medical groups to include in its scheme a group hospitalization plan and to have hospitalization facilities for its members, where necessary?

A.—Oh, yes. Ross-Loos has done it from the start and others have from the start included it in complete care. When we talk of it as complete care I think only of the medical care. Yet the bill may be for hospital care as well and really to use the word "medical care," you should include the hospital as well as the medical care, under the agreement with the subscriber.

(Thereupon, at 12:15 o'clock p. m., a recess was taken until 1 o'clock p. m. of the same day.)

AFTER RECESS DIRECT EXAMINATION—Resumed MILWAUKEE PLAN

By Mr. Lewin:

Q.—I would like to ask you whether or not you have any familiarity with the group medical centers at Milwaukee?

A.—I don't think I have enough to express any opinion; I have read their literature but I have not studied it. And as to the group medical center in Chicago my answer would be the same.

SOUTHERN PACIFIC R. R. PLAN

Q.—Have you any knowledge as to group practice in the large railway systems in the country?

A.—I have been somewhat familiar with the system of the Southern Pacific Railroad; with their experience with a large general hospital there in San Francisco. They have very widely scattered physicians all over the system. I have seen it working chiefly in the hospital where the more difficult and serious cases were sent. I used to go there quite often to see Dr. Lathrop Brown, who was one of their medical consultants.

Q.—What type of group practice would you regard that?

A.—That is group practice set up by a large corporation for the benefit of its employees. As I understand it, they don't deal with dependents, but they have a very wide system with railroad surgeons in different centers who can send their patients to the large hospital centers, if they think it necessary.

Q.—Has the railroad its own hospital or does it use private hospitals?

A.—In San Francisco it has a very large hospital of its own; I am not familiar with the situation along the railroad. I suppose they also use private hospitals.

Q.—Have other large railroads any such system with which you are familiar?

A.—I think it has been very common. I know of the Northern Pacific, which is one of the relatively earlier ones. I believe they are more common in the West and Middle West than in the East. I see relatively little of them in New England.

Q.—Would you think there was any justification for calling this type of practice "herd practice"?

A.—No, I don't think so; there is no herd involved.

Q.—Is it orderly?

A.—Oh, I think yes.

ADVANTAGES OF PREPAYMENT PLANS

Q.—Now I wish you will tell the jury in your own words what you regard as the advantages that emanate, if any, from this type of prepayment group practice.

A.—Well, you can divide it into two parts; the advantages which accrue, I think, always to the patient, the subscriber, and the advantages which accrue to the physician. To the patient the advantages seem to be very clear and very important. All of us, I think, with moderate incomes live constantly in dread of severe accident or illness, or prolonged accident or prolonged illness, as likely to entirely undermine our economic security. Here is a method by which that can be determined, under which they can be sure of getting complete care, depending for success only on the individual's ability to select a proper group; and in that connection the patient is confronted with the same problem in making his decision or choice of groups as he meets in his selection of a doctor. In other words, among groups as well as private individual doctors there are those which are very well conducted and others which are poorly conducted. But aside from this, group practice brings within his reach, the patient's reach, a good many articles, I should say, of medicine and medical care which he ordinarily does not get from a private practitioner. I made reference this morning to the question of preventive medicine. On a normal fee-for-service basis it would be impossible or impracticable to stop Jones on the street and say to him "You ought to have your children vaccinated." There is no question about the desirability of that. Yet if Jones said anything at all it would be probably to inquire about the cost, and very likely on finding out that it couldn't be done at a very reasonable expense he would decide to take the chance. He doesn't know what chance he is taking. It is a chance he shouldn't take at all. It is a chance concerning something of which he couldn't have any knowledge. Under an organization of group practice he gets that as a certainty, with his care for diseases, accidents, et cetera, as they turn up, and as a matter of course.

Again, I believe that in two periods of life pretty careful watching is necessary. Anybody will admit that children, in their early days, ought to be carefully watched; yet under the system of private practice we may be inclined to neglect this care which the child should have; you cannot see your way clear to pay for it. That diminishes as you are going through adolescence, and then, after middle life as people begin to walk into the sunset a great deal can be done to keep the machine from actually cracking up, so that they become dependent while still alive. The average man dreads the chance of being unable to work, and unable to earn, and still live. Many would sooner be dead. A good deal can be done by competent supervision to postpone the evil day and prolong man's working capacity. Those, in my opinion, are just some of the advantages from the point of view of the patient.

From the point of view of the physician, the advantages are various: In the first place, I suggested, they have ready access to their colleagues in the various fields of medicine; the specialist. There is no loss of time, no lost motion. They are at liberty to ask for consultations which they might hesitate to ask under normal conditions because of the expense to the patient. Here it is ready and available any time they think it would help them. They are at liberty to turn over a patient for a particular treatment to one of their colleagues without loss of time and without inquiring whether the man, that is, the patient, can afford it. The question of cost is eliminated, which makes the work of the physician easier and permits him many consultations which he could not charge a patient for.

Then I believe it is very important to him, the physician today, this opportunity to keep reasonably abreast of the progress in the specialized fields. He can keep abreast of his own field if he is reasonably industrious, but he falls down in those other

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fields in which progress is constantly being made, unless he has ready access to, and discussion with, his colleagues. It keeps his knowledge well rounded.

Then I think for many physicians—I suspect for an increasing number as time goes on—the knowledge that he will have a fixed income is not a small matter. Many physicians are in the greatest doubt as to what their income will be: whether it will be sufficient to support their families. From the point of view of the physician I know of no method whereby you can so successfully introduce immediately to the practice of medicine the young man as he comes from the hospital, as that provided by a regular income. It is a normal procedure in hospitals for young men to be selected and for them to be carried on and along until, after they have worked under the supervision of the staff they are given permanent positions. The well trained young physician today is a very capable person as compared with what he was in my day. He doesn't have to learn so much by practicing on the patient as he has had his experience before starting out, but he is likely to have in the earlier days a great deal of spare time which his patients don't demand, and he has to use it. I have seen a great many young physicians who have gotten into very undesirable states of mind because they have never enough work to do. They have an expensive education on which they have expended their own money or money of their family, borrowed money, and they are not using it. At that age they are people with youth, of great energy and driving power, and they have this talent and ability to employ. I know of no method whereby it can be so successfully used as in group practice.

ADVANTAGES OF GROUP PRACTICE

Q.—Is there any advantage resulting from that group practice in the way of supervision to them from this group staff?

A.—Yes, as I pointed out, the normal procedure of the great voluntary hospitals is to take on younger men, carry them along and, as they show capacity, permit them to move up; if they demonstrate no capacity, are lazy, they slip them out of the way. I am satisfied that the present system in that regard should continue to a certain extent and that supervision should not be lost. To get supervision in a hospital in the old days if there was anybody around who wasn't too busy the young man might get hold of him and do something under his supervision. This method which I speak of of having the younger men come into the hospitals under supervision is the method under which the staff in Mayo and at Michigan have been increased.

Q.—And there are qualified doctors to man group practice, in your opinion?

A.—I think so. I see their correspondence. I have communications from a pretty large number of younger men who want my advice as to how they can associate themselves with group practice, and my opinion as to the various groups.

Q.—Would the quality of medical care given by these groups be inferior to the average care gotten on a fee-for-service basis?

A.—I don't see how you can possibly generalize and say that every organized group would give care superior to the ordinary care, or that the reverse would be true. As I have said, some groups, like individual physicians, dispense an unsatisfactory article and that is no different from the situation which has always existed, in the case of physicians. On the whole it would probably be easier to choose a capable group than it is to choose physicians and then pass on to a variety of specialists.

Q.—So it depends on the individual physician and not on the type of practice in which he is engaged?

A.—I think in a group you stand a better chance of getting a good article.

Q.—Do you think that the fact that the doctors receive a salary has any effect on the working conditions under which they operate, and the quality of care they are able to give?

A.—My professional life has been divided almost exactly into two parts: nineteen years in private, independent practice, and about nineteen years in group practice. I have no hesitation in saying that during the years when I was in the University of Michigan in a group, on a salary and in the clinic that the care that I gave was of an entirely better quality than that which I gave in private practice. I could be entirely frank and honest. It made no difference to me whether I fitted in with the precise whims of the patient or not. I had no fear that if I told the patient the truth I would lose the patient. I think that is more or less in the background of every private physician in his treatment of the patient. We are afraid that if we say to Jones that he is behaving like a jackass, Jones will go to somebody else, whereas in a group you are at liberty to and do tell the patient the truth. I think we are more frank with the patient. Then

I think the ready access to consultants makes you feel very much more secure in relation to your work, so that from my own personal experience I am led inevitably to the conclusion I can give better service in a group than I can as an individual practitioner, even with hospital privileges.

Q.—Would you feel that the doctor who engaged in this type of practice was prevented thereby from having that proper relationship with his patients that he should have?

A.—Oh, no. The relation between doctor and patient is between the doctor and the patient; and doesn't depend on the type of organization. It depends on the wisdom and humanity of the physician and his proper relation to the patient.

Q.—Is there necessarily any lay interference from the laymen who are handling the business side of the group?

A.—Not necessarily. It may occur, of course, and I think profession ought to give its advice very freely to be very sure that the lay management deals with the things with which it has capacity, and leaves to trained experts decisions in matters of medicine and things for which it has special knowledge and ability.

Q.—Is the problem the same as it is with the hospitals where you have a lay board of trustees, and a medical staff?

A.—I don't see any difference; the relationship has gone on over two centuries.

Q.—Is there any more reason for the lay board to interfere in this group practice than there is for it to interfere in the conduct of the affairs of the ordinary hospital?

A.—I think it is possible that there is. I think it is possible that you take a group, for instance, take a cooperative group, which decides to undertake the care of its members through the medium of a group of physicians. Their relation is a little different. It is a little different from the relationship of the hospital trustee, who ordinarily isn't personally involved. I think there is a little danger that the cooperative will think of the medical care as it thinks of buying commodities, and try to get the same article at a little lower price. There is nothing more worthless in the world, and the danger is that the laymen may not recognize that point. That is a point upon which I think well advised bodies of physicians can produce a controlling influence, and should do so.

Q.—Would you regard the fact that the lay president of one of these groups, charged with the business affairs of it, wrote a letter to the hospitals telling the hospitals the group would like access to these hospitals for its physicians, as an example of improper lay interference in medical matters?

A.—No, he is simply asking for his group the ordinary privileges which might ordinarily be obtained for them.

Q.—Would you regard a reasonably worded letter coming from the president along that line as something that was arrogant?

A.—It could have been written in an arrogant way. The mere fact of writing the letter—certainly there wouldn't be anything arrogant in doing that. There is nothing wrong in trying to make sound arrangements with a hospital.

Q.—Would there be anything in such a letter which should offend or be likely to offend those hospitals?

A.—I am inclined to say that if hospitals could be offended that way you had better get new management.

Q.—How about the confidential relationship that exists generally between patients and hospitals? What effect would this group practice on a prepayment basis have upon that situation?

A.—Absolutely none.

Q.—Might there be some danger that the records in the clinics, concerning the patient, might come to light in some way and get into unauthorized hands?

A.—It is practically the same situation that has occurred in the great hospitals for a great many years. Those records are confidential communications, and it is perfectly clear under the law that they may not be at the disposal of anybody else without the permission of the patient. It is precisely the situation that has existed in the hospitals. I am aware that some records have been improperly shown, but I am also aware that private physicians have also allowed access to those records.

Q.—So the group practice on the prepayment basis has no bearing on that problem?

A.—No, I think not.

Q.—While you were in group practice, have you suffered any difficulty in preserving the secrets of your patients as distinguished from incidents of that character occurring while you were practicing on a fee-for-service basis?

A.—No, except this: Occasionally I tried to get a record that they wouldn't give because my name was not on the folder and I had to get another doctor to say I was a proper person to look at it.

FREE CHOICE OF PHYSICIAN

Q.—What is meant in the medical world by the phrase "free choice of physicians"?

A.—I think it is ordinarily used to mean that the individual looking for medical care may take any physician whose services he thinks he desires and in regard to whose capacity he has heard on what he believes to be good evidence that he is a good physician. I take that that is the doctrine of reasonable choice.

Q.—What bearing has group practice on a prepayment basis upon preserving free choice of physicians?

A.—I am inclined to believe that it preserves all the elements of freedom that are worth preserving. Of course, I don't myself believe that the average layman is well equipped to make the choice of physician where there are a considerable number of men available. A different condition may occur where there are not many physicians in the neighborhood, but it is very difficult in selecting a physician for the layman at times to make a good choice, because he has little or no knowledge of the article which he is trying to buy, and there is no satisfactory method by which he can find out its quality. He is depending on what is generally common gossip. Jones says that Brown is a great physician. That is a matter of opinion, and Jones's opinion may not be a very good one. It may be that he has not seen very much of him professionally. It may be that they are two personalities who get along extremely well, that Jones likes him, and so forth, but as a matter of fact Jones may be mistaken in believing that Brown is a good physician.

I doubt myself the accuracy of freedom of choice. I think the average layman will get a better article in group service if he makes his choice in hospitals and groups. Now, in Boston, there are three or four large hospitals between which a patient might make a choice, say the Barstow, and the Massachusetts General. If an individual requires hospitalization he makes a choice from one of those hospitals and having done that he feels that he has put himself in good hands. That has always occurred in the Mayo Clinic. The patient don't go there to see any particular physician. They have reason to believe the Mayo Clinic provides a good article of care and when they get there they normally are assigned to a physician, more or less in rotation, according to who is busy; and always to a general physician. I think that kind of choice which the average layman has is more likely to be right than if he undertakes to seek individual physicians and then the consultant.

Q.—So you don't define this freedom of choice as a capricious one; you define it as being an informed choice?

A.—I should like to provide a situation where it might be an informed choice. I think that they hit upon this method at a time when conditions were not what they are today and that the patient's selection under present day conditions is becoming less and less accurate.

Q.—Even if freedom of choice should be defined to be a capricious freedom of choice, could you tell us whether or not there is anything in group practice which could interfere with that?

A.—No, I don't think so, because in most well organized groups there remains a great deal of choice. Normally a patient is referred to one of the general physicians. Now it is within my knowledge that patients don't always get on with the particular physician. He will say, "I would rather see somebody else." "All right," he is assigned to some one else, or referred to some one else; he has made his choice in that group.

Q.—Well, is he limited to that group? If he desires to consult with another physician outside the group may he not do so?

A.—There is no method by which you can limit him.

Q.—So that he can consult any physician with equal freedom whether he is in the group or out of the group?

A.—I don't see it alters the situation in that regard except, if anything, for the better.

Q.—Would you say that a patient who is told by a hospital that he or she may not have the doctor that he or she wants enjoys the freedom of choice?

A.—No. Obviously not.

Q.—For instance, if one of these members of a group goes to a hospital and is told by the hospital "You cannot have your group doctor, you have got to have our staff doctor," do you think that would be a limitation of freedom of choice?

A.—Oh, quite.

Q.—Suppose a regulation were adopted—

THE COURT:—Mr. Lewin, may I suggest that some of your questions do not seem to do with expert testimony at all, or expert opinion, they are ordinary conclusions on which any person would exercise his judgment. I am only suggesting it to save time. This last question of yours is not one that—it is a matter of understanding of words, ordinary common understanding of words.

Mr. Lewin:—But, your Honor, there is a phrase that is used in this business called "freedom of choice." It is one of the issues here; it was made so yesterday.

THE COURT:—I understand that, but when you ask any person whether there is freedom of choice, that is not expert opinion.

Mr. Lewin:—Well, I think Dr. Cabot would know that and the jury would know which it was.

THE COURT:—We have to leave the jury something to determine.

Mr. Lewin:—Oh, yes. They have the issue here to determine.

THE COURT:—They ought to be able to determine the ordinary meaning of words. We should save as much time as possible.

By Mr. Lewin:

Q.—Dr. Cabot, if the American Medical Association takes upon itself to pass a rule that no doctor shall treat their patients in any of its approved hospitals except its own members, does that or not limit and interfere with the freedom of choice?

A.—It does.

GROUP HEALTH ASSOCIATION, INC.

Q.—Doctor, are you familiar with Group Health Association, Inc.?

A.—Well, I have seen something of their workings. I knew little of the plans in advance, on paper, so to speak, and expressed some opinions, and I did come down here and go over the layout with their staff. I shouldn't regard myself as having a very complete knowledge.

Q.—Could you tell the jury about when you were asked to look into the question for Group Health, and who asked you to do it?

A.—Well, it is hard for me to remember exactly. It must have been in 1937 that I had some correspondence with a Mr. Zimmerman, I think.

Q.—Yes.

A.—And saw him here.

I had some correspondence with a Mr.—well, either Fitz or Kirkpatrick.

Mr. Lewin:—Kirkpatrick.

The Witness: Yes. Then, I did come down here and went around and just saw the staff and saw them at work, one day, and had some discussion at that time with members, I suppose, of the board of trustees.

By Mr. Lewin:

Q.—In which of these categories of prepayment basis does Group Health fall?

A.—I would call it the consumer type.

Q.—Consumer type?

A.—Yes. In which the initiative comes from a group of patients, consumers of this medical care, who then undertake to arrange for a medical group which will do the work.

Q.—Would there be anything wrong or inappropriate in calling it a consumer cooperative?

A.—No. I should think that would be reasonably understood, what it was intended to do.

Q.—Can you describe it a little more fully for the jury?

A.—Well, I am not sure of the accuracy of my information. I was interested more to see whether this outfit with a clinic seemed to me to be doing a decent job than the questions of organization, which didn't seem to be much of my business.

Q.—What conclusion did you come to whether it was doing a good, decent job?

A.—I came to the conclusion at that time that they were equipped to do satisfactory work and that the four or five physicians whom I actually saw at work in seeing patients were doing very well.

Q.—Did you see the clinic itself?

A.—Oh, yes.

Q.—Here in the city of Washington?

A.—Oh, yes.

Q.—Did you inspect this equipment?

A.—Oh, yes. That is just exactly what I did.

Q.—How did you regard its equipment and the layout for its clinic, its facilities?

A.—Well, at that time, as I saw it, with the flow of patients, it seemed to me to be very well regulated, not excessive. I didn't find overcrowded waiting rooms, and the thing seemed to be moving smoothly; and I assume that it was a fair sample of an average day; they had at that time the proper space, and I might say the proper equipment to deal with that group of patients.

Q.—Did they have laboratories and x-ray machines and things of that sort?

A.—Yes.

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Q.—And were there doctors on the group staff making common use of these facilities?
A.—Oh, yes.

Q.—On the whole would you say that Group Health Association was fairly representative of the successful group practice on a prepayment basis such as you have described?
Mr. Leahy:—I object, your Honor.

THE COURT:—Objection sustained.
Mr. Lewin:—All right, your Honor.

By Mr. Lewin:
Q.—What would you say the effective group practice on the prepayment basis has done for the cost of medical care to the members of such groups?

A.—If properly organized I think it is certainly a method of diminishing the average cost. In a year it may not diminish the cost, but on the other hand, in another year it may be only a very small fraction of the cost which that patient, or some of them, would have incurred. On the average, taking it over a period of years I am satisfied that that method of payment would decrease the costs of the average family to obtain good medical care.

Q.—Is there any reason why group practicing doctors in clinics of this character will not keep themselves subject to call for their patients, so that they will be available to render care to their patients at all hours?

Mr. Leahy:—I object to that. It is impossible to answer it. This clinic as a 5 o'clock clinic and he wanted this jury to understand that all these groups that his organization opposes quit at 5 o'clock.

THE COURT:—I will permit the question.
Mr. Lewin:—You invited this.

Mr. Leahy:—Well, what are you getting mad about?
Mr. Lewin:—I am not getting mad. If you will permit me, I am just a little indignant.

Mr. Leahy:—Why, this is a very pleasant little gathering. THE COURT:—When I spoke of outbursts a while ago I had in mind, too, this kind.

Mr. Lewin:—I didn't expect to get that kind of objection to a question he brought up himself.
THE COURT:—After I have ruled on a question that ought to end the discussion. I ruled on that question and said that he could answer it.

Mr. Leahy:—Could I hear the question?
THE COURT:—The objection is overruled. It was overruled some time ago.
Mr. Leahy:—May I hear it?

(The question referred to is read by the reporter as follows:)
"Is there any reason why group practicing doctors in clinics of this character will not keep themselves subject to call for their patients, so that they will be available to render care to their patients at all hours?"

THE COURT:—The objection is overruled. I understand that question to mean whether there is necessarily anything in the organization of such a group which would prevent that.
Mr. Leahy:—Was that the purpose of the question?

Mr. Lewin:—Oh, yes. I think that is perfectly obvious, and I am obliged to your Honor for straightening my brother out.
Mr. Leahy:—He didn't straighten me out at all.

THE COURT:—Don't get so mad about it.
The Witness:—Give the doctor a chance.
group, and my experience with the group is, it is easier to get them after hours than it is the practicing physician.

By Mr. Lewin:
Q.—Did you see anything when you inspected Group Health and its operations which would entitle it to this epithet "5 o'clock clinic"?
A.—No.

THE COURT:—I don't believe I would go into that.
Mr. Leahy:—I have no objection.

THE COURT:—I have objected to taking up unnecessary time.
Mr. Lewin:—You? Honor permitted it yesterday.

THE COURT:—I permitted opening statements by you and counsel for the defense, but I don't permit you to take up now the opening statement for the defense. He was stating his defense.

Mr. Lewin:—Yes, your Honor.
THE COURT:—When they have put in their evidence in support of that, then if there is any occasion for rebuttal, we will have it. But we are not going to take up the rebuttal of this case at this time.
Mr. Kellcher:—But, your Honor, don't you think we should be permitted to describe the organization?

THE COURT:—If I thought you should be permitted to describe the organization I would have permitted it.
Mr. Lewin:—I am sorry then. I thought it was proper.

By Mr. Lewin:
Q.—Dr. Cabot, you told us that you for many years have been a member of the A. M. A.
A.—Yes. It must have been forty-two years, I guess.

Q.—What is the A. M. A.?
(Dr. Cabot answered many questions regarding the American Medical Association.)

Q.—Could you name some of the bureaus and councils?
A.—Well, there is the Bureau of Legal Medicine, and I think there is a Bureau of Economics, and perhaps something else put on to it, but it deals with the economic problems.

Q.—Isn't that the Bureau of Medical Economics?
A.—Well, I think so, yes.
Q.—Is there anything novel or laughable about the use of the term "medical economics"?

Mr. Leahy:—I object.
THE COURT:—Objection sustained. I have suggested to you two or three times that I don't think it is proper for you now to enter into a prosecution of the language of defense counsel in his statement.

Mr. Lewin:—Oh, I thought he entered into a prosecution of my language.
THE COURT:—Well, now, I am going to insist that you refrain from that.

Mr. Lewin:—I will.
THE COURT:—And of course my ruling with respect to you will also apply to the defense if they should assume such a method of examination. I don't think it is proper.

Mr. Lewin:—I would like to know whether the term "medical economics" is a term which has been used for a number of years.
THE COURT:—That wasn't your question. You may ask that.

Mr. Lewin:—Yes. I wouldn't say how many but I should think for more than twenty years.

By Mr. Lewin:
Q.—What generally is embraced in the science or study of medical economics?

A.—Well, the economic problems which are peculiarly applicable or more than ordinarily applicable to those problems which come up in the practice of medicine.
Q.—Has the A. M. A. a judicial council?

A.—Yes. Yes.
Q.—What is the function of the judicial council?

A.—Well, they pass on questions referred to them by the state societies in which the state society has taken action and they would like to have action reviewed or approved or disapproved. I don't think the judicial council can deal with problems of an individual except brought through a constituent assembly. Then I think they frequently render opinions at the request of the House of Delegates on problems on which they want an opinion on nonjudicial questions.

Mr. Lewin:—I don't want to offend against your Honor's ruling at all here. I understand this issue is one of substance and not language.

THE COURT:—Just put your question.

By Mr. Lewin:
Q.—I want to put this question to you: I want to know whether the A. M. A. has any control over who remains a member of the local medical societies.

A.—I should not think so in the first instance. The problem of the local medical society is to deal with its own members. Then either party aggrieved I think may appeal that decision to the judicial council.

Q.—And is that decision of the judicial council as to whether that man may remain a member or not, binding on the local society?
A.—Well, I suppose it would be assumed to be.

Mr. Lewin:—Yes.
Now, at this time, your Honor, I would like to offer in evidence a stipulation of counsel as to the introduction in evidence of certain documents. I will ask that that be given a number as an exhibit.

(The document entitled "Stipulation" was marked Government Exhibit No. 2 for identification.)

Mr. Lewin:—I should now like to offer in evidence certain portions of a pamphlet entitled "Proceedings of the House of Delegates of the American Medical Association, the 89th Annual Session held at San Francisco, California, June 1938," and the specific portions I wish to offer in evidence are the printed material appearing on column 2 of page 7, beginning about the

middle of the page, beginning "The general work of the Association" and running through the first two paragraphs in the second column on page 8 in the subject dealing with *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*. I should like also to offer from the same volume the report of the same proceedings offered by the Bureau of Medical Economics. That appears on page 30. And I offer such portions of the document that show the adoption of these reports by the reference committee.

Mr. Lewin:—From this report of the proceedings of the House of Delegates I will read the following:

AFTER RECESS

"The general work of the Association. The year covered in this report"—that is 1938—"of the Board of Trustees has been characterized by a very notable expansion in the activities of the various councils, bureaus and departments of the Association until, at times, available facilities have been seriously strained. A constantly growing interest on the part of the general membership in changing social conditions; increased efficiency of medical organization in counties and states throughout the nation; a more active and intelligent interest on the part of the public in matters pertaining to public health and medical service; legislative activities in the states and in the federal government; the consideration of important questions pertaining to medical education, hospital operations and the extension of public health programs; greater financial and administrative participation on the part of the federal government in public health affairs in states and in communities; proposals for the development of medical and hospital service plans for the benefit of the members of low income groups and actual operation of such plans; and a notable increase in the number of members of the Association together with many other important factors have brought into the headquarters offices a veritable flood of inquiries and demands for information and service. An earnest effort has been made to meet such demands as fully and as helpfully as possible. (58-59) (60).

"Business Operations.

"The official Report of the Treasurer and the official report of the Auditors are submitted to the House of Delegates as a part of this report of the Board of Trustees.

"The gross earnings for the year ended Dec. 31, 1937, amounted to \$1,634,203.74 as compared with \$1,547,218.23 in 1936. Operating expenses were \$982,830.10 as compared with \$909,417.95 in the preceding year. Association expenses including expenditures incident to the operations of councils, bureaus and departments amounted to \$431,635.63 as compared with \$411,028.93 in 1936, while miscellaneous expenses for the year 1937 including insurance and taxes, building expenses and depreciation, fuel, legal services, and the cost of sundry publications amounted to \$218,601.19 as compared with \$209,382.37 in 1936. The net income for the year was \$122,242.92 of which sum \$83,563.74 represented income from investments, so that the actual net operating income was \$38,679.18.

"While only a few of the bonds owned by the Association have defaulted in the payment of interest, there has been a rather serious depreciation in the market value of some of the securities held. The Board of Trustees, the Treasurer and the General Manager of the Association have sought the best available advice with respect to investment of the Association's funds. In accordance with the situation that generally prevails, the average interest return on invested funds has been decreased because of the substitution of securities bearing lower interest rates than those which formerly obtained.

"The payment of wages and salaries, exclusive of those involved in the operation of councils and bureaus, amounted to \$460,182.01 in 1937 as against \$443,693.17 in 1936. Increased labor costs in effect during the latter part of the year accounted for most of the increase in this item, and notification has already been received to the effect that these costs will be further increased during the current year. The cost of paper in 1937 was \$241,663.85 as compared with \$208,922.37 in the preceding year. These costs would have been considerably larger except for the fact that the fullest possible advantage was taken of the opportunity to purchase paper stock before material increased in the market price went into effect. The sum of \$97,274.89 was expended for postage in 1937 as against \$92,123.08 in 1936.

"Fellowship dues and subscriptions paid in 1937 amounted to \$670,170.31 as compared with \$638,243.18 in 1936, the increase being due principally to increased circulation of *THE JOURNAL* and to a rather notable increase in the number of Fellows enrolled. Total receipts from the sale of advertising space in Association publications were \$841,042.57 as against \$780,299.01 in 1936.

"The number of employees at the time of the preparation of this report was 616.

"The purchase of some new machinery and equipment, contemplated when the last annual report of the Board of Trustees was submitted to the House of Delegates, was deferred, in part for the reason that some of the machinery that must be purchased will have to be newly constructed and in part because some of the older machinery which it had been intended to discard was repaired or partially rebuilt so as to extend its usefulness. It will be necessary to install some new machinery in the printing department during the current year. Increased activities of the councils, bureaus and departments of the Association have required the purchase of a considerable amount of new office material (58-59) (60).

"In the Report of the Treasurer and in the Report of the Auditors, submitted herewith, will be found more fully itemized statements of income and expenditure.

"Summary.

"Gross earnings and miscellaneous income were larger in 1937 than in 1936, while operating and miscellaneous expenses were also considerably larger. Income from investments was slightly larger than in 1936. The net income for the year was \$122,242.92, of which amount \$83,563.74 represented interest on investments and \$7,453.20 represented miscellaneous income.

"The Association Building.

"The experience of the past year has fully justified the action taken by the Board of Trustees whereby the entire building was remodeled and two new stories and an assembly hall were added. Better working conditions have been afforded in all departments, and it has been possible by reason of building expansion to bring closer together councils and bureaus whose work is closely correlated and thereby to avoid unnecessary duplication of effort and to increase efficiency.

"Many commendatory expressions have been received concerning the beauty of the Association's building as it now stands. The Board of Trustees would urge the members of the House of Delegates and the members and Fellows of the Association who may find opportunity to do so to visit the headquarters offices to see at first hand the nature and the scope of the work that is being prosecuted there. (59) (60).

"THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

"The place held by *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* in the field of medical periodicals is now so well established that it is unnecessary to offer comment on this point. Nevertheless, the publication has not been static. It has developed a new series of articles on the relationship of the pharmacopeia and the physician. It has continued its campaign against mortality from typhoid and from diphtheria and has reestablished the campaign against Fourth of July accidents.

"The publication formerly called the *Bulletin of the American Medical Association* is now fully incorporated in *THE JOURNAL* as the Organization Section. Here special attention is given to problems of organization, to medical economics, to reports of activities of various councils, bureaus and departments, and to the work of the Woman's Auxiliary. The value of this week by week circulation of important information in the field of economics and of organization for the maintenance of interest of the individual physician cannot be overestimated. Because of the significance of this material, the Board of Trustees would recommend that it be placed in the center of *THE JOURNAL*, and incorporated as a regular feature on medical economics."

I won't bother now to read the other portion of it that I introduced in evidence; and I will introduce now under the same stipulation—will you mark this, please?

(Pamphlet entitled "Proceedings of the House of Delegates of the American Medical Association, the 89th Annual Session Held at San Francisco, California, June 13-17, 1938" was marked Government's Exhibit 3, and received in evidence.)

Mr. Lewin:—I should now like to offer from this volume entitled "Proceedings of the House of Delegates, 1932," certain portions which describe the Bureau of Medical Economics, and the report of the secretary which deals with the Mundt resolution; and the reference committee reports showing the adoption of such reports from the reference committee.

Mr. Lewin:—I should like to offer also certain portions of the proceedings of the House of Delegates of the A. M. A. for the year 1932. That is dealing with the Bureau of Medical Economics, on pages 15 to 18 of that report.

Mr. Lewin:—I withdraw Government's Exhibit No. 4 and my offer to prove it, because I am now authorized by counsel for defense to state to the jury that the following allegation of the indictment is admitted by all of the defendants, without qualification, to be true:

"Defendant American Medical Association maintains a bureau known as the Bureau of Medical Economics which concerns itself with economic organization of the practice of medicine."

Mr. Lewin:—I now offer in evidence, under the same stipulation, excerpts from the Proceedings of the House of Delegates of the American Medical Association, 1931, appearing on page 4 thereof and headed "Bureau of Medical Economics," and also appearing on page 24 thereof, headed "Hospital and Health Associations."

Is there any objection?

Mr. Leahy:—May we approach the bench, if your Honor please?

THE COURT:—Yes.

(Counsel for the respective parties approached the bench and conferred with THE COURT in a low tone of voice.)

Mr. Lewin:—The offer of the excerpts appearing on pages 4 and 24 of Government Exhibit No. 5 is made only as against the defendant American Medical Association at this time.

THE COURT:—It will be admitted on that basis.

(Excerpts from Proceedings of the House of Delegates, 1931, pages 4 and 24 thereof, were marked U. S. Exhibit No. 5 and received in evidence.)

Mr. Lewin (reading from U. S. Exhibit No. 5):—

BUREAU OF MEDICAL ECONOMICS

The Bureau of Medical Economics is just being organized and ultimately will have all available information regarding the cost of medical care. So much misinformation regarding economics is being broadcast that it is certainly our obligation and responsibility to set this right. This means a great deal of study and work and is a task for those who have had much experience in these activities. There are few actual practitioners of medicine on the five year committee on the costs of medical care. The statistical work of the committee has been tremendous, and a great deal of information will be available. It seems to me that a bureau made up of men from the Association would be better able to put the

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proper interpretation on the findings of this committee than would those in government and public health work alone. This bureau must have the best man power that can be obtained."

Now I will read from page 24 of the same document (reading):

"HOSPITAL AND HEALTH ASSOCIATIONS

"In reports previously submitted to the House of Delegates, the Council has referred to organizations controlled by groups of laymen, or by individuals, offering medical and hospital service to any who will buy 'membership' and pay a nominal sum each month as 'dues.' Such schemes have been put into operation in various places and have failed within a few weeks or months because of inadequate income or because of failure to render good service. The Judicial Council has regarded these schemes as being economically unsound, unethical and inimical to the public interest."

"Within the last year, some community hospitals have announced their intention to provide medical, surgical and hospital service to families on a flat rate basis. In at least one instance, such service has been offered to families for \$35 a year, irrespective of the number of members in such families. In most instances, certain exceptions are made in that persons with chronic diseases are not entitled to receive the benefits of the plan and obstetric service is not supplied without additional compensation. The members of the Judicial Council doubt that it is wise to lead the people in any community to believe that all necessary medical and hospital service, even though chronic diseases and obstetric care be excepted, can be provided for the average family for \$35 a year. In the cases presented to it the Judicial Council has advised against the adoption of such plans by community hospitals because it is believed that they are not economically sound in that they may be unfavorably affected by conditions entirely beyond control under which contracts cannot be fulfilled. There are other aspects of the matter that readily present themselves for consideration involving the interests of physicians in the community who cannot participate in such plans."

I ask to have marked Exhibit No. 6 the Proceedings of the House of Delegates of the American Medical Association, 1932, from which I offer, as against the American Medical Association alone, certain excerpts headed Bureau of Medical Economics, appearing on pages 15 to 18, and certain excerpts relating to the Mundt resolution appearing on page 40. (Document entitled "Proceedings of the House of Delegates of the American Medical Association, 1932" was marked U. S. Exhibit No. 6 and received in evidence.)

Mr. Lewin:—I shall read from pages 15 and 16.

BUREAU OF MEDICAL ECONOMICS

Purpose, Functions and Method of Procedure

Immediately following the establishment of the Bureau in March, 1931, the director formulated an outline of the purpose, functions and methods of procedure of the Bureau and the phases of medical economics in which work should be initiated as soon as possible, to serve as a guide for both study and administration.

The Bureau of Medical Economics is established to study all phases of general economics that have a bearing on the practice of medicine. In every consideration of medical economics it must be remembered that: humanity; reward or financial gain should be a subordinate consideration. "A profession has for its prime object the service it can render to the practice of medicine is a profession." Although business methods and economic principles are essential to an orderly conduct of the primary phase of the practice of medicine, all such methods and principles must serve rather than dominate the profession, must be secondary to the primary object of the profession, and must conform to the accepted principles of medical ethics.

The principles of medical economics, as they become established, should serve the profession as a sound guide in business and economics; they should never be perverted to defend even the borderline actions of the near charlatan.

The functions of the Bureau of Medical Economics are: (1) to collect, tabulate, study, criticize and prepare for publication and distribution data pertaining to the economics of the practice of medicine; (2) to furnish critical and constructive information and opinions by correspondence on the several phases of medical economics; (3) to encourage the adoption by individual physicians and medical societies of modern, sound, ethical business methods; (4) to urge medical schools to provide medical students with information concerning the economics of medical practice, and an outline of essential business principles which should be incorporated early in individual practice; (5) to develop, ultimately, a consultation service with respect to medical business methods.

The Bureau will endeavor to collect data on the following phases of economics:

- Capital investment in medicine.
- Care of the indigent sick.
- Collection methods and agencies.
- Contract practice.
- Costs of medical education—students' expenditures—complete cost.
- County and state dues.
- Dispensaries and clinics.
- Distribution of physicians.
- Evaluation of medical facilities.
- Evaluation of patient's ability to pay.
- General insurance for physicians.
- Group practice.
- Health and accident insurance.
- Industrial medicine.
- Instruction in medical economics (college and extension courses).

- Malpractice insurance.
- Medical fees.
- Office plans.
- Office systems.
- Panel systems (of foreign countries).
- Physician's income.
- Sickness financing.
- Sickness insurance (compulsory and voluntary).
- Sickness savings.
- Sickness statistics.
- State, county and municipal health department activities.
- Thrift programs.
- Workmen's compensation.

and such other phases of medical economics as may from time to time properly come within the scope of the Bureau's activities.

Opinions on specific, individual or local professional economic problems should be guarded or tentative until a general principle shall have been established to govern in the consideration of each special phase of medical economics. In all phases of the general subject in which the experience of large nonmedical groups has led to the adoption of definite economic policies, due consideration will be given such findings and policies when seeking to establish economic principles for guidance of the medical profession.

Every question pertaining to medical economics will be considered impartially and without personal bias. Courtesy and fairness, with non-medical groups that touch some phase of medical economics, must mark every step of progress.

Policies and principles established after careful deliberation, supported by factual evidence and, wherever possible, by parallel procedures in the business, industrial or commercial fields will thenceforth govern in similar questions and situations.

When considering the economics of medical care, one must make a clear distinction between commercial and economic interests. Commercialism is characterized by: (1) unreasonable fees; (2) alleviation always predicated on cash in hand or no service; (3) unethical tendencies or practices; (4) destruction of scientific motive in both the individual and the profession at large; (5) transformation of the profession into a trade or business; (6) destruction of confidence in the profession; (7) an insidious tendency toward state medicine. Economics as applied to medical practice is predicated on sound ethical principles, constructive and reasonable: (1) Alleviation of suffering, prevention of disease, and reasonable primary obligations of the profession; (2) there should be a just compensation for service rendered; (3) modern ethical business methods are necessary to provide the highest type of service at the most reasonable cost; (4) ethical business methods insure adequate amount and quality of service to indigent as well as pay patients; (5) correct economic measures serve to promote in the profession higher scientific attainments because of greater freedom from financial anxiety.

Detailed methods of providing the most economic medical service to both indigent and pay patients must differ according to local requirements, but the principles and policies governing the application of these methods must be universally applicable.

In many phases of medical economics, physicians must act as an organized group in order to accomplish the most worthy ends. Individual action along these lines will not be as effective or as free from error as collective organized action.

Whenever legislation limits or obstructs the most effective economic and high grade medical service, efforts must be made by organized medicine, after thorough study of the subject, to remove such limitations or obstructions.

New methods of providing medical care should be adopted only after a careful and thorough study of present medical facilities and the requirements for additional facilities. Duplication of effort and overhead expense is a principle diametrically opposed to correct economic methods.

By Mr. Lewin:

Q.—Now, Dr. Cabot, would it be fair to say that the great advances in the sciences that are involved in medical service are solely attributable to the American Medical Association?

Mr. Leahy:—Oh, I object, if your Honor please.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—To what body of men, if any, body of men, can you attribute the great advances in the sciences that have brought described, Doctor?

Mr. Leahy:—I object to that, if your Honor please.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—Do you know whether or not there is any reason to believe that these group prepayment plans, such as you have described, are designed to destroy the American Medical Association?

Mr. Leahy:—I object to that, if your Honor please.

THE COURT:—Just a moment, Doctor. Objection sustained.

By Mr. Lewin:

Q.—Do you know whether or not, from your knowledge of these plans, they are designed to destroy private practice?

Mr. Leahy:—I object, if your Honor please.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—Would you say that a doctor of medicine, Dr. Cabot, was the only person who could tell what the economic standards of practice must be in order for them to be in the public interest?

Mr. Leahy:—I object, if your Honor please.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—Would you say that doctors of medicine are the only ones who can judge whether or not medical service is being properly distributed?

Mr. Leahy:—I object, if your Honor please.

THE COURT:—Where do you get that from, may I ask?

Mr. Leahy:—Yes. I got that from the issues presented here.

THE COURT:—You did not get it from the indictment, did you?

Mr. Lewin:—No, sir.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—Would you regard it as perfectly proper for one of these group prepayment plans to seek consultations with other doctors outside of the group in serious cases?

A.—Oh, yes. It has been the practice of various groups. I should think it would be highly desirable.

Q.—Would you consider it perfectly proper for them to seek such consultations from members of the A. M. A., even though they might not be members of the particular group staff?

A.—Why, certainly, sir. If they were not members of the A. M. A. they would be very limited in their consultation.

Q.—Why do you say that, Doctor?

A.—Because a vast majority of the physicians of the country are members of the American Medical Association.

Q.—Do you know anything about the attitude of the American Medical Association toward the development of the Group prepayment plans that you have described?

A.—I know what I have seen in the publications of the American Medical Association, chiefly in THE JOURNAL, and what various of their officers have said. I should think, on the whole, they have been inclined—

Mr. Leahy:—I object to anything further. He has answered the question.

Mr. Lewin:—All right.

By Mr. Lewin:

Q.—You say you have observed that attitude. Have you observed any specific instances in which the American Medical Association has manifested an attitude toward group practice that you know of?

A.—I remember that a constituent society, the California society, interfered a good deal with the—

Mr. Leahy:—I object, if your Honor please. There is no evidence that the constituent society of California is the A. M. A., acting as such.

Mr. Lewin:—Oh, yes; we will connect that, your Honor. This witness has already testified that the American Medical Association has constituent societies in every state of the Union. That certainly includes California.

Mr. Leahy:—That is true.

Mr. Lewin:—One of the issues in this case under the indictment is going to be the long-continued opposition to the American Medical Association has exerted against every one of these prepayment plans throughout the United States.

THE COURT:—You are, as I understand it, speaking of the A. M. A. as the managing head. Then does the opposition come down through the constituent elements, or does it originate in the constituent elements? I do not know. Unless you can bring it to the American Medical Association proper, I doubt that it would be competent.

By Mr. Lewin:

Q.—Do you know whether or not the policies of the parent body, the A. M. A., with regard to matters such as these, influence the local societies which are its constituent members?

Mr. Leahy:—I object.

THE COURT:—Objection sustained—if that is an objection. Please make your objections formally so I will know that you are definitely objecting.

Mr. Leahy:—I said, I object, if your Honor please.

THE COURT:—Oh. Pardon me. I will sustain the objection. I only ask that counsel make their objections specific.

Mr. Leahy:—I shall try to do so, your Honor.

By Mr. Lewin:

Q.—You mentioned the state of California. Do you know of any instance in the state of California in which the parent body, the A. M. A., has indicated an attitude toward group practice on a prepayment basis?

A.—Yes.

Q.—I would like to ask you what that attitude was and have you tell the jury about it.

Mr. Leahy:—I object, if your Honor please. That is not the best evidence. If the A. M. A. has expressed an attitude it has done it in some way officially.

THE COURT:—It would not seem to be the best evidence, unless he was there and heard the discussion.

Mr. Lewin:—He says he knows about it. He is a member of the A. M. A. and he is an expert on medical economics and on group practice on the prepayment basis.

THE COURT:—The question is, how he knows.

By Mr. Lewin:

Q.—How do you know about it, Doctor—by study or observation?

A.—By communication with the group which was in disfavor.

Q.—You went out there and inspected the group, did you not?

A.—Not at that particular moment.

Q.—But you had—

A.—I have done so; yes.

Q.—And by reason of your contact with them you gained personal knowledge of the attitude of the A. M. A. toward it; is that correct?

Mr. Leahy:—If your Honor please, the doctor has just told us—

THE COURT:—Are you objecting?

Mr. Leahy:—Yes, your Honor.

THE COURT:—Objection sustained. There is another way of proving the opposition than the method you suggest. Obviously, from what the doctor said it would be hearsay.

By Mr. Lewin:

Q.—Have you knowledge of an incident in Texas?

A.—Yes.

Q.—With regard to the attitude of the A. M. A., the parent body, toward group practice there?

A.—Yes.

Q.—Will you state how you gained that knowledge?

A.—I gained that knowledge as the result of a decision of the Judicial Council made in a case coming from the state of Texas, from one of the constituent societies.

Q.—Will you tell us the name of that case?

A.—I think it is ordinarily known as the Dallas Street Railway case.

Q.—Can you tell us the name of any of the doctors involved in that group practice?

A.—I am afraid I cannot.

Mr. Leahy:—I object. There was nothing said about whether it was group practice or not.

Mr. Lewin:—Oh, yes. I asked him that question.

Mr. Leahy:—No, you did not.

By Mr. Lewin:

Q.—Do you know of any incident in which the attitude of the A. M. A. was manifested towards group practice in Arkansas?

A.—Not specifically, I think, sir.

Q.—In Florida?

A.—Yes, I think so. I think there was a case there, in Miami.

Q.—Have you knowledge of the attitude on the part of the A. M. A.?

A.—I have knowledge only through the documents in the case. I have no personal communication from any officer of the A. M. A. or from the local society.

Q.—What if any knowledge have you of manifestations of the A. M. A.'s attitude toward group practice in Milwaukee, Wisconsin?

A.—Nothing more than gossip, sir.

Q.—Have your own medical and surgical associates in Boston had any controversy with the A. M. A.?

A.—No.

Q.—Or with the local society?

A.—With one of the district—

Mr. Leahy:—I object to that, because it is entirely immaterial, if it was a local society not connected with this case.

THE COURT:—Objection sustained.

Mr. Lewin:—All right, Mr. Leahy. You may cross examine.

Mr. Leahy:—Thank you.

CROSS EXAMINATION OF DR. HUGH CABOT

By Mr. Leahy:

(The cross examination repeated at first the early career of Dr. Cabot. He said the Massachusetts General Hospital was a closed hospital.)

Q.—Would you explain that to us?—because I think the jury would like to know what a closed hospital is.

A.—A closed hospital—the term was used for years, and I think it is still valid—is a hospital in which the staff is appointed presumably by the governing board, and they are the

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only people who may practice in that hospital. In the days when I was concerned with it the patients there were all charity patients. There were no private patients in the Massachusetts General Hospital, and I don't think there could be legally at that time. A closed staff was the rule in those charity hospitals in that day.

Q.—I am afraid that the question is liable to come up in the case as to dispensary service. Would you explain that to the jury also, so they will understand what that is as it is connected with the hospital?

A.—It is often referred to as outpatient service and sometimes referred to as ambulatory service. It means patients who can come to the hospital and see doctors on the staff and return to their homes, as opposed to patients who may come to the dispensary and are then sent in to the hospital because they are too sick or require study or for any reason too sick to go home. The outpatients at the dispensary are people who can come under their own power more or less.

Q.—While you were at the Massachusetts General there were no charges made for the services which were rendered to any of the patients; is that the fact?

A.—No, sir; no charges.

Q.—Was it a state institution or a municipal one?

A.—No. It is a very old chartered institution for which there was originally a grant from the state, as the result of which the governor has the appointment of three of the board of trustees out of a group of nine; but except for that grant, along about the Dark Ages, there was no other connection with the state. So the State did have, through the trustees, a minority representation on the board.

Q.—Do you know how it was supported financially?

A.—Oh, yes. By what is ordinarily known as charity, sir; rather "pet charities" of the city of Boston. It was quite a respectable thing to give money to the hospital. It was quite a Mayo Clinic?

Q.—Would you tell us, too, a little more in detail about the (Dr. Cabot again went over many details of organization of the Mayo Clinic.)

Q.—And those who came for treatment to the Mayo Clinic came from all over the United States, did they not?

A.—Quite.

Q.—There was no particular group of individuals which the Mayo Clinic served in any way, was there?

A.—Oh, no.

Q.—In other words, the only group notion about the Mayo Clinic is that it was a group of experts who had established themselves in Rochester, Minnesota?

A.—Yes, sir.

Q.—And to whom those who desired the services of that group of experts came for treatment?

A.—Yes.

Q.—Did the group own its own hospital, Doctor?

A.—No hospital, sir. They never had. For economic reasons they thought it would be better to let that be an entirely separate matter.

Q.—So the service which that clinic renders is medical and surgical service?

A.—Oh, no.

Q.—It collaborates with the hospitals; is that it?

A.—It has its own laboratories on a large scale, sir, that has nothing to do with the hospital.

Q.—But the clinic itself neither owns nor operates any hospitals?

A.—No.

Q.—It has its own equipment, of course, does it not, as you stated, its laboratories?

A.—Yes.

Q.—But there is nothing about the Mayo Clinic which you would designate as a consumer clinic?

A.—Oh, no, sir. That is just what it is not.

Q.—It is strictly, then, in my poor lay language, just a group of excellent physicians and surgeons who are located at Rochester, Minnesota, and who by their skill and by their reputation now have people coming from the United States and perhaps the world to them for treatment; is that true?

A.—I think so. I think it is definitely a group organized for certain purposes.

Q.—In other words, there is not any one who, on a definite, specific, stipulated sum of money, cannot go to the Mayo Clinic and demand service at any time?

A.—Oh, no, sir.

Q.—The Mayo Clinic does do charity service also?

A.—Oh, yes, sir.

Q.—There is another thing that I wish you would explain in connection with some of these questions which are bound to come up in the case, Doctor, and it is just apropos of your answer. What is meant by service for indigents?

A.—It means, I take it, the medical care of people who cannot afford to pay; people who are not paupers, as I used to use the word. That has disappeared now, and they have substituted the word "indigent." But also a group of people who were not paupers, but who had no available funds to pay for medical care. The group has been enlarged, and I think that should be included in the word "indigent," under present conditions.

Q.—Those who reasonably cannot pay for medical care?

A.—Yes.

Q.—Those would probably be described as indigents?

A.—Yes. They tacked on the word "medical"—medical indigents—so as to complicate it a little more.

Q.—Instead of legal indigents?

A.—Yes.

Q.—So we find that the Mayo Clinic does do and did do while you were there what we would call charity work or the care of the indigent?

A.—Yes.

Q.—With reference to the patient who is able to pay, he pays for the service that is rendered to him as a patient by the clinic; is that true?

A.—Yes, sir.

Q.—And that is true of each patient who can pay?

A.—Yes.

Q.—I take it you knew both the Drs. Mayo very well, did you not?

A.—Yes.

Q.—And called them Charlie and Will?

A.—You were not allowed to call them anything else.

Q.—Were they members of the American Medical Association?

A.—Oh, yes.

Q.—Were they presidents of the American Medical Association at any time?

A.—Both of them.

Q.—Do you remember how long ago they were presidents?

A.—Dr. Will was president many years ago. I find it difficult to say, sir, but it was long before the day when I went to the clinic and, I think, before the time when I was at Michigan. I used to come down there, and I think that was after he had been president. Then some years later his younger brother, Dr. Charlie, became president.

Q.—Is there also a son who is still there?

A.—Yes, Charles. He is the son of Charles.

Q.—Do you know whether or not he is a member of the American Medical Association?

A.—Oh, sure fire.

Q.—You also are operating a clinic at this time in Boston, are you not?

A.—I don't call it a clinic, sir, in any ordinary sense of the word. I think of a clinic as a little different kind of organization.

Q.—I will give it the word you want me to call it.

A.—It is a method of offering medical service. I think of a clinic as having to have a building and laboratories and a lot of things of that kind. We have not got to that stage, and may not do so. But at the present time we have a considerable group of physicians who agree to care for a group of patients.

Q.—Do they also practice privately in their profession?

A.—Oh, yes. This would form a very small part of their work.

Q.—Would you describe to us just what your scheme is in Boston, Doctor?

A.—I have already described a part of it. I ought not to duplicate it. The arrangements are arrangements by which we as partners, a group of five of us, ask a group of younger men to work together and ask them to ask their friends, and finally state that we should be glad to take on as an associate physician any physician who is licensed to practice, who is a member of the Massachusetts Medical Society and thus of the American Medical Association, and having courtesy privileges at an approved hospital. The term "approved hospital" means approved by the Council on Hospitals of the American Medical Association. In that way we thought we could certainly secure for our patients a group of physicians not the worst in the state; and then we agreed to accept as consultants in any field anybody who held a certificate from these modern certifying boards which have grown up in the specialties with the approval of the American Medical Association, but not precisely under it. Then of course we also accept as consultants younger men.

could not yet become certified but who within our knowledge or the knowledge of our associates are capable to the extent of their age and size, so to speak.

Q.—Are you at the present time on the boards of any of the hospitals in Boston?

A.—No.

Q.—But you do, of course, enjoy all hospital privileges?

A.—I do not, because since I returned to Boston I have not had occasion to treat patients. If I did I could do it in the Massachusetts General Hospital or the Phillips or the Falkner. But I have not actually made any use of them because I have had no occasion to.

Q.—Do your associates, the doctors whom you have just mentioned to us, also have the privilege of the use of the hospitals?

A.—Yes, because we will not take anybody who has not access to a hospital, who cannot follow his patients to the hospital. We do not believe it is sound practice to have a patient separated from his physician just because the physician has no hospital privileges.

Q.—Are there any other organizations or clinics similar to the Mayo Clinic near Boston?

A.—Yes. The Lahey Clinic in Boston which was, I think, modeled after the Mayo Clinic. I think it is a relatively young organization.

Q.—Do you know whether Dr. Lahey is a member of the A. M. A.?

A.—I think he must be. He is President, and I assume so.

AMERICAN MEDICAL ASSOCIATION

Q.—Now, Doctor, when was it you first joined the A. M. A.?

A.—In June 1899.

Q.—You ought to know something about it, Doctor. You have followed the history of A. M. A. have you not?

A.—I tried pretty hard to, sir.

Q.—You know, of course, about THE JOURNAL, something of which was just read a short time ago to the jury?

A.—Yes. I spend a great many hours reading THE JOURNAL.

Q.—What do you think of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION as a medical journal?

A.—Oh, it is undoubtedly today the most important medical journal in the world, sir.

THE JUDICIAL COUNCIL

Q.—A question was asked you with reference to the constitution of the American Medical Association, and that was with reference to its council, the Judicial Council, and I think you stated that so far as you knew the jurisdiction of the particular council was limited in a sense, as we call it, to sort of an appellate jurisdiction?

A.—Yes.

Q.—It does not originate anything?

A.—I do not think so, although I would not be dogmatic about it.

Q.—Let us assume that a doctor in one of the local county associations were charged and his local county association had expelled him. Do you know whether or not that member of the county association would have an appeal or the protection of an appeal in any way?

A.—I think he would have to go to the state society and then take an appeal to the Judicial Council.

Q.—And that is where the jurisdiction of the Judicial Council comes in?

A.—That is my understanding of it.

Q.—In other words, the member who is charged, before he is expelled, has the protection, first, of his own association, then of the constituent state association and then one further step up to the Judicial Council of the American Medical Association?

A.—Yes.

Q.—In other words, the American Medical Association itself does not originate charges against anybody?

A.—I don't think so, sir.

STATUS OF COUNTY MEDICAL SOCIETY

Q.—Am I right, too, Doctor, from your experience, in saying that the county association is an independent association which governs itself, elects its own officers, has its own constitution and by-laws, of course subject to the medical ethics prescribed by the American Medical Association?

A.—It is subject to its own state control. I take it, first, it is a subdivision of the state society.

Q.—With reference to its own internal affairs, its own local affairs in the county association, it elects whom it wishes to membership, does it not?

A.—Yes; I think so.

Q.—There is no control superimposed by the state association upon the county association with reference to the constitution of its membership, is there?

A.—Yes; I think there is, sir. I think the state association lays down certain rules as to who may be admitted to membership in the county society.

Q.—But within those rules the county association admits as it sees fit?

A.—Yes.

Q.—And then it elects its own officers, does it not?

A.—Yes.

Q.—And it has its own constitution and by-laws?

A.—I would not be too sure. I never saw the constitution and by-laws of the County Society. I guess they have one.

GROUP PRACTICE

Q.—Just a few questions, Doctor, about what was asked you with reference to group practice. How many, in your own experience, would you say there were of these groups—and let us call them consumers—which had been organized, we will say, during the last ten years in the United States? Have you statistics on that at your fingertips?

A.—No; but very few consumer groups, as you and I, I think, are using the term, who were associated in an important way before that time. This is rather a recent development in the group field.

Q.—That is, consumer groups?

A.—Yes.

Q.—And in order that we might not be at variance as to what we are talking about, a consumer group is a group of individuals who buy medical service or are patients or potential patients?

A.—Yes.

By Mr. Leahy:

Q.—Have you any knowledge from your studies as to whether that sort of consumer group practice had been tried abroad in Europe before that time?

A.—I think the principle had been tried though the setup was a little different. A great many years ago, particularly in the low countries, in Denmark and the Netherlands, cooperative groups arranged for medical services, but the thing is all pretty shadowy, pretty old, and largely disappeared. There were some arrangements more recent than that directly under organized cooperatives, but I think they are relatively few and I cannot say I understand much about them. I don't think they are an important economic development.

Q.—And I think you said they were relatively few in the United States also?

A.—I don't think there are many.

GROUP HEALTH ASSOCIATION, INC.

Q.—Do you recall when it was you first saw group health in Washington?

A.—Now, I don't want to be dogmatic about that. I could say roughly.

Q.—Just your best recollection.

A.—Probably in the autumn of '37; it might have been in the early part of '38.

Q.—Do you recall when it was that you first knew about group health in Washington in any way from any source?

A.—You mean this specific organization?

Q.—Yes, this specific organization.

A.—Well, it was certainly during the year '37, not before that.

Q.—Do you recall about how long it was before you came down here that you learned there was such a group?

A.—Probably two or three months.

Q.—And did you learn about it through someone writing to you?

A.—I daresay I heard about it from Dr. Richard Cabot, who had, I think, been down here. I never saw him here. He wrote me about it and thought I would be interested, and would probably want to know about it. I daresay that was the first I heard of it.

Q.—Did you come down here to see the group at the request of someone or at your own choice?

A.—I came at the request of some member of the organization here, the lay organization.

Q.—Do you recall who it was who asked you to come?

A.—At a guess, it was either Kirkpatrick, if that is the right name, or Penniman. I had some correspondence with both those gentlemen. I would not be dogmatic; I am not sure I have the right name now.

Q.—Did you meet whichever one of these gentlemen it was, whether Kirkpatrick or Penniman or who, when you came to Washington?

A.—Yes.

Q.—Do you recall how long you were at the clinic?

A.—Oh, I should say perhaps three or four hours.

Q.—Did you go back the same day you came down?

A.—No, I stayed overnight. I first talked to some of these laymen and then went to the clinic, and then, if I remember correctly we met for dinner and there carried on a discussion, and also later in the evening.

Q.—Did you go very thoroughly into the organization of the group?

A.—I wonder whether you mean of the medical or the business organization?

Q.—Did you go into the business organization at all?

A.—Only so far as to note what their scale of charges was and to come to the opinion that with a reasonably large group of subscribers the amount of money they would have would be sufficient to enable them to carry on.

Q.—Do you recall now as to whether you had any information as to how many subscribers they had at that time?

A.—I remember being impressed by the fact that at that time the number was not large enough to make certain that if it would not grow that it could carry on and render the kind of service intended.

Q.—Did you have any number fixed in your own mind, Doctor, of subscribers which would be the minimum in order for the success of the venture?

A.—I had it fixed in my mind; I came to the conclusion that without something in the neighborhood of a thousand members the fixed income would be insufficient with which to do the job.

Q.—Do you recall what each subscriber was to pay when you were talking to them?

A.—It would be difficult for me to say because I didn't make any mental note of it. It would, however, be right in my mind that they were to pay \$2 a throw, but I wouldn't put very much money on it.

Q.—You mean by that \$2 per month?

A.—Yes.

Q.—You think about \$25 a year per person?

A.—That is the way it lies in my mind; after that it was raised, I think.

Q.—As a result of the inspection which you made at the clinic you thought that about \$25,000 would operate it as it was then equipped?

A.—I didn't put it that way; I didn't figure that out that way.

Q.—Does it work out that way?

A.—Yes.

Q.—You said the irreducible minimum as to the number of subscribers would be one thousand, and the cost of the operation \$25,000 per annum?

A.—Well, I was aware that those things don't start in a vacuum, and you must build them up; and it seems to me, or it seemed to me that they must have a thousand members to enable them to carry on according to the program and not leave them worried as to whether or not they were going to get by.

Q.—Did you at that time go over the equipment; inspect it?

A.—Yes, that would be a fair statement. I went around from one department to another and, comparing it with similar equipment elsewhere, thought it sufficient.

Q.—You were told how the equipment was purchased, were you not?

A.—No, if I was I have forgotten about it; I wasn't concerned.

Q.—Were you told as to where the funds came from to purchase the equipment?

A.—No.

Q.—You were just shown the clinic; you inspected it, and you were told they had a thousand members?

A.—I don't remember that they said they had a thousand members; and I don't think that I said that I did.

Q.—But you concluded they would have to have that number in order to function properly there according to the program which you understood they had?

A.—Just a minute; I think you are putting something in my mouth. As I understand the subscriber, he is the head of the family who then brings in various dependents. Now it is very commonly true that a subscriber pays a fixed sum; then a dependent, usually a wife, pays a somewhat lesser sum; then other dependents who are under 18 pay a lesser sum, and young children a still lesser sum. So I don't understand that it was to be expected that there would be \$25 from every patient; I was talking about subscribers; not patients.

Q.—In other words, the subscribers, or the patients, might exceed the actual number of subscribers?

A.—Yes, as I use the word, that is right. The number of individuals who have care often exceed the number of people called subscribers and to whom the group looks for its moneys.

Q.—Do you recall now whether you went over the plan thoroughly enough to ascertain what a dependent of a subscriber paid at that time?

A.—I think I was told; I don't remember, but I am satisfied it was a lesser sum than the subscriber. I was chiefly interested in ascertaining whether or not a good job could be done there. I am not regarded, myself, as a financier, and do not pretend to know much about the business end of it.

Q.—Did you go into the financial side at all?

A.—Not in more than very general terms.

Q.—Did you meet the doctors?

A.—Yes, I think I probably met all of them; I wouldn't like to say.

Q.—Who was the surgeon at that time?

A.—A gentleman by the name of either Sellers or Selders.

Q.—Did you ever meet him before?

A.—No, sir.

Q.—Did you have any further study made of the Group Health Association here in Washington than that one visit?

A.—Beyond correspondence, et cetera, publications, no. That is the first time I ever went there and looked over the organization, physical plant.

Q.—I take it you had nothing to do with the original formulation of the plant?

A.—Nothing.

Q.—It was a going concern when you first heard about it?

A.—I think it was not quite clear which way it was going; there were some features that were dropped.

Q.—Well, it was operating?

A.—Yes, the wheels were turning.

Q.—When you saw it?

A.—Yes.

Q.—Have you ever been in the clinic since that time?

A.—No.

QUALIFICATIONS FOR HOSPITAL STAFF

Q.—I think you stated something to us today on direct examination, and inasmuch as we are on the subject of hospitals, you stated it to be your opinion, Doctor, as I recall it, that in your judgment any person whom the state licensed, and whom the state declared was capable of practicing medicine, ought to have the privilege of practicing medicine?

A.—Yes, I have felt very strongly about that for a great many years. That is my opinion. I have constantly said so. It has troubled me considerably.

Q.—Do you know of any state, city or hospital where that thought of yours is put into effect?

A.—No, that's it. That's one of the things that trouble me.

Q.—In other words all hospitals do through their local board of trustees make an investigation of those who are admitted to either the regular or courtesy staff?

A.—In the hospitals with which I am most familiar the operation is carried out through the staff. The governing board says, "Now, you look into the qualifications of these people, and if in your opinion they are qualified, submit their names." I think the governing board never undertakes to have any opinion of their own. They depend on the opinion of their staff.

Q.—Now, under your opinion, Doctor, which you state, in your judgment, there is at least a prima facie right in a doctor who has been licensed to practice medicine until he is found to be wanting in some way; as I understand it, that is your idea?

A.—Yes.

Q.—But even under your thought, if you knew something about a doctor which you thought should disqualify him from service in the hospital, or from the right to serve his patients in the hospital, you still wouldn't think he would have the right to courtesy privileges, would you?

A.—That is a little abstract. The question was whether I knew something which would disqualify him. That would depend on what it might be. As to the younger men I might think that by bringing them in and putting them in the staff and letting them develop, that that reason might disappear. I am a great believer in taking them on, putting them on the staff and, particularly, if they are young. Youth, to be young, that is not a fatal disease. Now, men older than that you would have to know something about their capacity.

Q.—Would you think, for instance, that a doctor who had just graduated from—what do you call it? Resident Service?

Yes, just graduated from residency, and been licensed to practice should have the right to practice general surgery of all kinds in a hospital?

A.—Well, it depends on the nature of his residence, but on general principles I should want to have him come in and observe him, and see him function under the supervision of the staff and then give him an opportunity, if he demonstrated the capacity, to be put on the staff.

Q.—Would you think the hospital should give that young man or that person the right to perform any and all kinds of operations?

A.—I should be skeptical about that.

Q.—Wouldn't you want to make some inquiry to determine his fitness?

A.—I should be in favor of giving him a chance to show what ability he possessed, as I have explained to you.

Q.—Well, wouldn't you want to know more about the man? Wouldn't you want to make some investigation; or would you think that it was proper for him to go into the hospital and perform any sort of an operation?

A.—I would be skeptical about that, but I would like to see him in action. Talking about these fellows with others doesn't get you very far.

Q.—Would you let him go in action first, and then determine his qualifications later?

A.—I would let him go into action under wraps.

Q.—What is that, Doctor?

A.—I said I would let him go into action under wraps.

Q.—What do you mean by that?

A.—I would like him to do operations of lesser and moderate severity at first; certain minor operations, standard operations of moderate severity. I should like to know how he actually behaved, before I actually turned him loose.

Q.—In other words, you wouldn't want to give him the privileges of practicing on mankind in order to determine whether or not he was qualified to do so?

A.—No, unless he was a trained man of which I had plenty of knowledge. But there are people who by reason of their residence training are entirely qualified by that training alone.

Q.—Let us assume he was a resident for one year and then had come out with a license to practice. Would you think his license to practice, with an experience of residency of one year would entitle him to the privileges of general surgery in the hospital, or would you put him under wraps?

A.—Put him under limitation.

Q.—Now, you wouldn't think even under your own opinion that the mere license a doctor might possess to practice his profession would entitle him to hospital privileges if there was a grave suspicion as to the legality of his practice, would you?

A.—Oh, no.

Q.—For instance, if you knew there was a question, a serious question raised as to the legality of the practice of a given physician, and you found that the hospital staff had requested that his application be held up until that question had been determined, would you think that was a reasonable act on the part of the hospital?

A.—That sounds reasonable. I don't know what the word "legality" means, as you use it.

Q.—Suppose we are specific: Suppose or assume that the association with which this doctor is connected has been notified by the Federal District Attorney for the District of Massachusetts that they must desist the practice in which they are then engaged, and you know this young man has made an application to your general hospital for hospital privileges, if you were advising the hospital, as a member of its staff and so advised it that they ought to withhold the privileges from this young man pending the determination of the question, would you consider that good advice?

A.—That would sound like good reasonable advice.

Q.—Just what you would do?

A.—Yes.

Q.—Now with reference to one other phrase, and then we will be about through. We have had here asked about "adequate medical care," and "complete medical care." Frankly, I don't know what they mean. Will you tell us?

A.—I won't bite.

Q.—Frankly, I don't know the meaning of those terms. Will you tell us what they mean?

A.—I will not, I don't know what it means. I don't use the words, adequate medical care, complete medical care.

Q.—Well, won't you give us your idea of what they mean?

A.—No, I won't; I don't know.

Q.—You don't know; and I don't know either. I don't think anybody knows.

A.—I will tell you what "complete medical care" is.

Q.—Well, what is complete medical care?

A.—Complete medical care would mean that the care offered by this organization covered the whole field of preventative medicine, diagnosis and treatment in all fields. It is very all-inclusive. It means that there is no condition from which the patient complains that you will not treat him for.

Q.—In other words you think the staff numerically should be large enough so that there will be a man, some member of the staff, competent to handle any and all cases in every field?

A.—If the association says they offer complete care, yes. Now, I know of several organizations that started in on a small scale, who were perfectly frank to say there were certain fields they would not undertake to explore. They made that very clear; they were frank about it and there was no difficulty.

Q.—But exclude those fields?

A.—Excluding those fields, they should.

Q.—Now, in your opinion, would the care be complete medical care if the quality given was not good medical care?

A.—I suppose when I say "complete" I refer to quantity; the question of quality would be another matter.

Q.—You would think there was complete medical care if it wasn't of good quality?

A.—I might regard it as complete. I think the question of quality would have to be separated from the question of quantity.

Q.—In any organization which offers to anybody or everybody complete medical care, if in that care they render the care is not good care, the quality is not good; would you think the organization was operating in the public interest?

A.—It would depend on who said it was not good care.

Q.—I will make it in your opinion. If in your opinion the care was not good, what would you say?

A.—If I didn't think it was good care, I should say "No."

Q.—And do you think that there would be or could be any one else who could determine that question other than a physician?

A.—I would not pick a fool like me: I would pick a much better group of people than that.

Q.—Well, you would pick a good medical man, wouldn't you?

A.—I think I should want a group of physicians, with varying capacities. I, for instance, would be a very poor witness on the capacity or capabilities of an ophthalmologist for instance or of a specialist in certain other fields. I should doubt whether there would be any one physician who could judge the capacity of the group; and I think it is a job for more than one physician, a committee of them.

Q.—In any event it would necessarily be a group of medical men?

A.—Yes.

Q.—Did you have an opportunity while you were here at all to observe the quality of the practice of Group Health Association?

A.—Well, I saw two, if I remember, of the physicians actually examining and treating patients.

Q.—What were they examining for?

A.—One was a pediatrician, and he was looking over children, and he seemed to me to be doing a thorough job of it. Now, I am not an expert pediatrician, but after seeing for a good many years what has been going on I think I would be able to say whether or not he was doing his job in a slipshod, slapdash sort of way, and on the whole he seemed to me to be doing a pretty good job.

Q.—Who else?

A.—I saw a younger member of the staff doing an operation on a septic finger. Now that is down my alley. He was doing that job all right.

Q.—Is that all you observed?

A.—That is all.

Q.—What examination was the doctor making of the child?

A.—A pretty good, thorough examination. I played around with him for quite a while, watching him with the child.

Q.—Was it just a physical examination?

A.—Just a physical examination.

Q.—Was the child sick?

A.—Well, there were several children in the course of the time I was there.

Q.—Did you see them all examined?

A.—I should say three or four; I saw him examining.

Q.—Do you recall what the people were suffering from?

A.—Not in the least.

Q.—Do you recall how many patients were there while you were there?

A.—Well, I observed that there was no overcrowding there. The patients seemed to come along in reasonable sequence. That is one thing which always impressed me, and of which I have always taken notice. I thought at that moment the organization was taking care of the patients at a reasonable rate.

ORGANIZATION SECTION

Jour. A. M. A.
Feb. 22, 1911

Q.—But you haven't any recollection as to how many patients you saw there?
A.—With that physician?

Q.—Yes.
A.—Three or four.

Q.—With any other physician?
A.—There was no crowding in the waiting room, I can say that. I will tell you I am a little sensitive about that. Up where I have lived I have had some experience with that, and it has left me a little sensitive on that score. In Boston I have seen overcrowding and there did not appear to be any here.

Q.—By the way, would you tell us how the doctors are taken on the staff at the Mayo Clinic?
A.—It would be difficult to say. Most of the appointments made during the days that I knew very much about it seemed to come from Dr. Will. Just what extent he discussed the details with the other people I couldn't say; I assume he did, however.

Q.—Did they come by invitation?
A.—The men who were brought from outside all did. Then there were additions to the staff from the younger men on fellowships. They carried them on a yearly basis and finally they were appointed. That was going on all the time.

Q.—Doctor, you made one answer this morning: I want to ask you this. You said you thought you rendered better service, or maybe that a man could render better service, where he was engaged with a group than he could individually; that you did a better quality of work?

A.—I am pretty sure I did.
Q.—Why do you think you work better with a group than by yourself?

A.—I can compare it, of course, with the conditions under which I worked in Boston and Michigan, which was frankly first place there, while at our office there and at Rochester. In the first place there was no waste motion; no loss of time, going from one patient to another, from hospital to hospital; a tremendous amount of wasted motion in the earlier days. Then I was constantly unable to get prompt opinion or advice when I wanted it. In the group there was very close articulation between yourself and the other physicians and specialists. And with me—I was free from the feeling that I had to pay any attention to the financial or economic status of the patient. I had no worry at all whether this patient, if I told him something he didn't like, whether he would go to somebody else and not pay his bill. Working in a group that is entirely removed, and I feel very clearly and so felt that I could give a very straightforward opinion. It is on sounder ground in treating and in viewing the patient in whom I had no financial or economic interest. They were just sick people to me to whom I gave my opinion. I did the best I could and if they didn't like it they could throw me out of the clinic, but I could be honest.

Q.—That is what you meant by your answer this morning, in that respect?
A.—Yes.

Q.—Doctor, you believe that no matter what the group is, whether producer group or consumer group, that whatever staff they have should be competent?
A.—Sure fire.

Q.—In other words, if there is not a competent staff there to render the services they claim or offer, that group would not be operating in the interest of the public or the group; is that true?

A.—Yes.

Q.—Have you any notion now about what you would consider to be a proper staff in a group?
A.—No, because it depends on local conditions. How large is the group of subscribers; at what distances do they live away from the clinic and away from each other. They must all have home visits. If I was dealing with a situation such as Ross-Loos where I might have to cross the city—it is only a hundred miles, from one end to the other of the City of Los Angeles is only a hundred miles—it might take me some time; and if I was working in a relatively compact space with no problem of distances I could get along with a much smaller staff. I don't want to put the size of the staff entirely on the basis of the number of patients.

Q.—In your studies and from your experience now, have you in your own mind any plan which could be a standard consumer plan, under your notion of complete medical care and good medical care; how such a plan could be set up?
A.—I should think it would be possible to have a standard. A committee from the eastern part of the country spent a good deal of time in trying to draw up principles from which a guide could be made on that subject. Michael Davis was chairman

of that committee, and we spent a good deal of time associated with groups and we drew up what you might call a draft of the salient features of the plan, and I think, of course, it was very well done.

Q.—Would you mind telling us who were on the committee?
A.—I am not sure of all of them. The committee was called first by Michael Davis, Kingsley Robert; Clifford Loos and Dr. Allan Butler of Boston; and then there was a gentleman from Little Rock, Trinity Hospital, whose name I can't remember.

Q.—Was that Dr. Shadid?
A.—Yes. Mr. Lewin—Ogden.

Q.—He had been with that hospital group for many years. There may have been one or two others but I doubt whether we ever had more than that number at any one meeting.

Q.—I notice the committee you named is a committee of doctors?
A.—Michael Davis is a doctor of philosophy.

Q.—He called the group together, but the group was a committee of doctors?
A.—Yes.

Q.—Do you think a committee of laymen would be able to formulate a plan for the distribution of medical care without consultation with doctors?
A.—Oh, no.

Q.—Is that plan that you adopted—has that been put into effect?
A.—That was not adopted; these were just recommendations.

Q.—Just recommendations?
A.—Yes; that is all. It was only a general method by which you might study the capacity of an organization.

Q.—Doctor, while you were here in Washington on that trip for Group Health, did you examine any of the clinics which were evidently similar to this you discussed this morning, here in Washington?

A.—No, sir.
Q.—Did you know or did you hear of our Harry N. Lewis Clinic?
A.—No.

Q.—Our American Compensation Accident Clinic?
A.—No.

Q.—Northeast Insurance Clinic?
A.—No.

Q.—Union Market Workmen's Compensation Clinic?
A.—No.

Q.—Washington Industrial Accident Clinic?
A.—No.

Q.—Washington Building Workmen's Clinic?
A.—No.

Q.—The First Aid Station?
A.—No.

Q.—None of those were brought to your attention while you were in Washington before?

A.—No.
Q.—Of course the industrial clinics which come to your mind have been in operation for a number of years, haven't they?

A.—Yes.
Q.—Doctor, you said your committee had made certain recommendations. Would you just glance at this (handing document to the witness) and see if this is a statement of the recommendations your committee made?

A.—No, sir.
Q.—Those are not?

A.—No.
Q.—Are you familiar with this?

A.—I could not say I am. I know this case from a different source than anything I have ever been associated with.

Q.—You haven't been associated with Group Life Federation of America, Incorporated?
A.—No.

MONDAY, FEBRUARY 10
DR. HUGH CABOT (CONTINUED)
(Dr. Cabot described improvement in hospital service.)

A.—I think perhaps the most striking thing is the improvement in the type of people who are in the position of trustee. In my earlier days it was likely to be a resting place for highly respectable, but quite dead, people, who spent their time doing other things. I have been very much struck by the improvement in the type of trustee and his ability to grasp the general situation. Then, of course, there has been an enormous improvement in the buildings. Even in my short time a great many of the hospitals were pretty shabby and shoddy places, where I didn't blame people very much if they took one look at them and then ran. Improved buildings have made them look like

places where you would be likely to get good care. And, finally, the improvement of the staff and the staff organization has been very striking.

Q.—Would you explain to us, while you are on that point, just a little bit as to what the board of trustees does in the ordinary hospital?

A.—In the ordinary hospital they are people who, in the first instance, must decide all of the problems, which include the financial, the economic and the general social problems in which hospitals are involved. They are charged with the business of the selection and the appointment of hospital administrators—hospital superintendents, as they were more commonly called in the past—and then finally, with the appointment of the staff. They are the people through whose hands all of the appointments must go. They must in some way obtain satisfactory information as to qualifications of the people that they appoint.

Q.—I think you stated you noticed that in that particular itself you have seen a better class or at least a more interested class of trustees?

A.—Yes, sir.

Q.—They seem to have recognized their responsibility and to have assumed it?

A.—Yes, sir.

Q.—To a higher degree than they did back in your early days of practice?

A.—Yes, sir.

Q.—Because, after all, it is a responsible thing, is it not, to operate a hospital under proper standards of care?

A.—I regard it as one of the most important responsibilities that the ordinary layman can be asked to take on.

Q.—And there is hardly any branch of hospital care that is not a subject of great importance, so far as the maintenance of proper standards in the hospital is concerned?

A.—No.

Q.—For instance, the equipment is essential, is it not?

A.—Yes, sir.

Q.—And it ought to be of the very best they can purchase?

A.—Yes, sir.

Q.—A board should be careful in the selection of its staff to get the best men possible for its staff?

A.—Yes, sir.

Mr. Lewin:—Are you speaking of its courtesy staff or its regular staff?

By Mr. Leahy:

Q.—Would you explain for the jury, apropos of that question or comment, what is the distinction between the duties or the rights or privileges of the regular staff in a hospital as opposed to the courtesy staff?

A.—Referring to hospitals which have the dual function of the care of the indigent and the care of patients who can pay, the ordinary distinction is that what is known as the permanent staff are people who are responsible for the care of patients who contribute little or nothing to the cost of their care. Of course these people may have private patients in the hospital, unless it is one of the common hospitals where there are no private patients. Those people are responsible for the care of the indigent and semi-indigent.

The courtesy staff are physicians of good repute who may use the hospital and all of its paraphernalia for the purpose of treating their paying patients, and they are generally regarded as part of the hospital staff, but not involved in the making of decisions which the permanent staff ordinarily makes or the policy which they refer to the administration.

Q.—In other words, Doctor, it is true, is it not, of the permanent or general staff of the hospital, that any particular doctor upon that particular staff may be called upon at any time by the hospital to take care of any indigent patient who may be entered therein?

A.—Yes, sir.

Q.—And if you were, for instance, as you have been, upon the permanent or regular staff of hospitals, called at any particular time of the day or night, if the hospital needed you for some patient who was suffering from a cause which required your specialty for treatment, you would go, would you not?

A.—Yes.

Q.—And there would not be any question of the pay, so far as you were concerned, from your poor patient?

A.—No, sir.

Q.—In other words, the care of the indigent in the general hospital which has means for such care lies with the general or permanent staff?

A.—Yes, sir.

Q.—But the courtesy staff consists of those doctors who have been given the privilege of entering the hospital to take care of their own private patients?

A.—Yes, sir.

Q.—For instance, the hospital would not call upon a member of the courtesy staff to attend such a person as I have just described, who was brought into the hospital, an indigent who needed treatment?

A.—No, sir.

Q.—That would go to the permanent staff?

A.—Yes, sir.

Q.—Are there some hospitals, Doctor, which are known as hospitals for intern training or resident training?

A.—Yes, sir.

Q.—Would you explain those to the jury, too, so that they will understand it?

A.—In general terms a hospital cannot satisfactorily train interns unless it is of considerable size. A small hospital which may be entirely sufficient for the care of a relatively small community, a hospital of 25 or 50 beds, is not a satisfactory place to give the early post-graduate training to those physicians who have finished their medical course but still have a good deal to learn through direct contact with patients. Those hospitals must be of reasonable size and give a reasonable variety of opportunity. For instance, a hospital, though it may be large, which has only one type of patient, that is to say, patients with mental diseases, would not be a satisfactory place for the training of interns except for specialists in mental diseases. It must be in truth and in fact a general hospital where they will get a fair cross-section of the various conditions which they will be called upon to treat. I am not clear just what standards of size have been determined and, in fact, you could not settle it on terms of size. One hospital with a hundred beds might be an unsatisfactory place for the training for interns if it was importantly concerned with one or two types of disease, whereas another hospital of the same size might be an entirely satisfactory place.

Q.—Is it true, Doctor, of the student of medicine as of the student of law that in the medical school he is grounded in the basic sciences of his own profession, but he does not get practical experience while he is still in the medical school?

A.—That is not today the truth, sir. It was true when I was a medical student, though not entirely. At the present time, in broad terms, the first two years of a medical course are largely in the fundamental sciences, and a good deal of work in the laboratories. But beginning in the third year and sometimes in the latter part of the second year they go to the hospital, see patients with the staff and with the instructors, and today, commonly during their fourth year, they play a moderate part in the care of patients. They are appointed as what is often known as clinical clerks, and they see the patients and take the history and make certain examinations, under supervision, of course, and they get a good deal of contact with patients during their third and fourth years. While they require more experience, they are relatively fairly well equipped, much better equipped than they were forty years ago to treat patients.

Q.—Do you recall, Doctor, how many medical schools there were in the United States, say twenty-five years ago?

A.—Well, roughly and generally speaking, a hundred and twenty to a hundred and thirty.

Q.—Do you know how many there are today?

A.—Seventy-two or seventy-three.

Q.—Do you recall now the reason why these others have dropped by the wayside, so that there has been a reduction from one hundred and twenty down to seventy-two or seventy-three?

A.—Oh, yes; I recall that very well. I was involved in the job there. It was based on a report made to the Carnegie Foundation by Mr. Abram Flexner in which he reviewed in a masterly fashion the existing schools in the United States. He pointed out that there were a great many schools which gave a pretty poor article of education and that probably should not properly be called medical schools at all; they were proprietary schools in which a small group of physicians undertook to form a faculty, the chief purpose of which was to obtain consultants for those same gentlemen from their students; and they were not to be compared with a group of medical schools many of which were associated with universities in which the instruction was relatively very much better.

The issuance of that report had a very profound effect and influence on two bodies: the American Association of Medical

Colleges and the American Medical Association, acting independently, but together, to bring pressure which resulted in the disappearance of some schools in the consolidation of a great many schools. In some states as many as two or three existing medical schools were consolidated generally under the general purview of the university, and the disappearance of schools between about 1911 or 1912 and 1924 or 1925 was relatively rapid.

Q.—Those seventy-two schools which are still training young doctors are all pretty much what they call Class A schools today, are they?

A.—Yes. They are classified as class A, but it would be a mistake to regard them as of equal value.

Q.—Do you have also a similar classification of hospitals with reference to their standards?

A.—There are two general classifications of hospitals: one started a good many years ago. I remember the early studies made about 1920 or 1921 under the auspices of the American College of Surgeons which had chiefly for its purpose to see that the hospitals were properly equipped, that they had proper laboratories, that they had reasonable staff organizations and that the opportunities for interns and for the students were such that they could get a sound view of the then practice of medicine. Then at a later date, which I could not accurately establish, the American Medical Association went into the question of the qualifications of these hospitals for intern training. Those two studies are a little differently weighted. The American College of Surgeons was concerned with physical equipment and standards of administration. They were not specifically concerned with the opportunities to train interns to the extent that the American Medical Association has been.

Q.—Do you recall over how many years the A. M. A. has been interested in seeing to it that proper standards have been maintained for the training of interns in hospitals?

A.—I should find it difficult to establish it more accurately than at least fifteen years.

Q.—Is that same period of time also the answer to the question as to the interest of the American Medical Association in the educational facilities which various medical schools render to the students?

A.—I don't think so, sir. I should say that the interest of the American Medical Association in medical education went very much farther back. This inspection and classification of hospitals was an outgrowth of their interest in the problem of medical education.

Q.—In your judgment, that interest is a beneficial one for the public, is it not? Is it in the public interest to see to it that the hospitals are kept to high standards of qualifications and that they are also required to maintain a proper curriculum and proper facilities for the education of the young doctor?

A.—There are two questions there. I will try to answer them separately.

Q.—Answer in your own way, Doctor.

A.—It is certainly in the public interest that a group of experts, such as the American Medical Association, should be interested in the conduct of hospitals. There can be no argument about that.

In regard to the curriculum, they are probably interested, but I believe it to be strictly the business of the university—and practically all of the medical schools of the country now are parts of universities—I think it is the business of the university to maintain their own standards, get all the advice and help they can from experts, but I still believe the public responsibility for the conduct of medical schools remains with the university and cannot be transferred to any other body.

Q.—But you think it is in the public interest for the A. M. A. to do the best it can to see that those standards established by those schools are high and in the public interest?

A.—Yes; in general terms they are no doubt in the public interest.

RE-DIRECT EXAMINATION

By Mr. Lewin:

Q.—You just testified, Doctor, that in your opinion you regard it in the public interest and beneficial to the public interest for the A. M. A. to take an interest in hospitals, to see that they live up to certain standards. Will you tell the jury what type of standards, in your opinion, the A. M. A. should be interested in, in order to be in the public interest?

A.—I should say the standards were those standards which pertain to the study and care of patients. In that field they are the undoubted experts. In other fields they might not be experts; but whether a given hospital is equipped and does, in fact, give good care to patients, is very much the business of a large and well developed medical organization.

Q.—How, in your opinion, should the American Medical Association manifest that interest in order to be in the public interest? Should it seek to control the hospitals or should it simply advise them?

A.—It does not occur to me that a professional association can control a hospital, as I use the word. The control must remain with the lay board. The lay board will naturally give great weight to the opinion of a professional association on professional questions; but there could, I take it, be no question of control. Control must remain with the governing body.

Q.—Would you regard the approval by the A. M. A. of a hospital for intern and resident training as a valuable and important thing to a hospital in these days?

A.—Oh, it is very important.

Q.—Why is that, Doctor?

A.—Because it establishes with the public, practically, through the governing body, the fact that this hospital is an organization that has an equipment and staff which will authorize you to assume that it will give good care. Such approval is undoubtedly of first class importance.

Q.—Then you would think the A. M. A. should be very careful with reference to giving or withholding approval of hospitals, would you not?

A.—Oh, I assume that any scientific body would of course reach an opinion with great care. It is the essence of science to be careful in the conclusions drawn from premises.

Q.—Has the courtesy staff of a hospital normally anything to do with the training of interns?

A.—I should say not. There may be hospitals in which the courtesy staff plays some part in training interns, but I do not happen to have known of one.

Q.—Would it, in your opinion, be in the public interest for the A. M. A. to insist as a condition of giving its approval to a hospital that that hospital confine itself, its regular and attending staffs, and its courtesy staff, solely to members of the American Medical Association?

Mr. Leahy:—I believe the subject of expert opinion, if your Honor please,—

THE COURT:—Are you arguing or are you objecting?

Mr. Leahy:—I am objecting, your Honor.

THE COURT:—I think it comes down to one of the principal issues in the case.

Mr. Lewin:—It is one of the subordinate issues in the case.

THE COURT:—Put your question once more, and I will see if it is proper.

By Mr. Lewin:

Q.—You testified, Doctor, that it was in the public interest for the A. M. A. to take an interest in hospital standards. Now I ask you whether it is in the public interest for the A. M. A. to insist, as a condition for giving its approval to a hospital, that all of the members of the staff of that hospital be members of the A. M. A.?

Mr. Leahy:—That is the question to which I objected.

THE COURT:—You have drawn in the public interest in your own questions, Mr. Leahy. I think perhaps it is proper.

Mr. Leahy:—It is secondly objectionable because of the use of the word "insist."

THE COURT:—I do not know what significance that word may have. The witness may answer the question.

Mr. Leahy:—Exception, your Honor.

The Witness:—I should be very doubtful as to whether any professional group ought to be in the position to declare that its members only are competent people in the profession. It is entirely within my knowledge that able physicians have gone on for years, or for their lifetime, without being members of the American Medical Association. So I should be very fearful of giving to any professional body the right to say that their members and their members only were capable of giving good care. I think it is a risky extension of power to any group.

By Mr. Lewin:

Q.—What interest, then, could the American Medical Association properly have in the character of the staffs of a hospital?

A.—I think they have a very important interest. They have, in the first place, the machinery to inspect and examine these hospitals, which can only be done by some well organized group without considerable exertion. They can have a staff of more or less expert people who spend a great deal of their time and come to know a great deal about technique in studying the hospitals. So that I think as a group of experts giving advice to governing bodies they have a very important function.

Q.—Should their interest be limited to advice, or should they go beyond that?

A.—I do not see how it can safely be anything but advice, because the control must lie with the governing board and cannot lie with a professional group, safely.

Q.—Dr. Cabot, while you were on the stand last Friday under cross examination you were asked these two questions and you gave these answers, which appear on page 388 of the record.

A.—Can you not put them separately instead of a "shotgun prescription"?

Q.—This is a question by Mr. Leahy (reading):

Q.—Suppose we are specific: Suppose or assume that the association with which this doctor is connected has been notified by the Federal District Attorney for the District of Massachusetts that they must desist from the practice in which they are then engaged, and you know this young man has made an application to your general hospital for hospital privileges, if you were advising the hospital, as a member of its staff, and so advised it that they ought to withhold the privileges from this young man pending the determination of the question, would you consider that good advice?"

And your answer was (reading):

A.—That would sound like good, reasonable advice.

Q.—Just what you would do?

A.—Yes."

Let me put this question to you: Suppose you had received notice of the objections of the District Attorney in that case to the group with which the doctor was associated, or that in his opinion the group might be regarded as a corporation practicing medicine without itself having a license, and that the group might be regarded as engaged in the insurance business without complying with the insurance laws: if you were advising a hospital as a member of its staff, how would this opinion of the District Attorney affect your advice to the hospital upon this doctor's application?

A.—That is a very difficult question. Such an opinion of a District Attorney could not possibly affect my opinion of the capacity of an applicant for the staff. My opinion of the applicant for the staff must depend upon his professional qualifications, and could not be based upon intricacies of law which do not run at all to his ability to look after sick people.

Q.—Then if that is all that you had learned from the District Attorney, what advice would you give the hospital in regard to the admission of this physician for courtesy staff privileges.

A.—I should advise them to proceed in entire disregard of the opinion, and examine the qualifications of this physician as they would examine the qualifications of any other physician who was a candidate for their staff.

Q.—And by qualifications, what kind of qualifications?

A.—Oh, I assumed that I was talking about professional qualifications. Knowing what it was he asked to be allowed to do, I should want to study what evidence there was that he was able to do those things.

Q.—Just what did you mean when you answered Mr. Leahy's question on Friday in the way in which you did?

A.—Perfectly frankly, I misunderstood him. I understood that the charges against this hospital were of an entirely different character. Let us be perfectly brutal and frank about it. I thought it was charged that this was an abortion.

Q.—And it was on that assumption that you gave the answer which you did give?

A.—Right.

Q.—Suppose that there are charges of any kind of illegality, or charges, rather, that it might be practicing medicine without a license or engaged in the insurance business without complying with the insurance laws, and the District Court of the United States for that district, after a full hearing, had categorically decided that such charges were completely unfounded, and then such a surgeon presented again his application to the hospital for courtesy staff privileges: what advice would you give the hospital in that situation?

A.—Certainly under those conditions any possible disability has been removed. But as I suggested to you, I should not regard a legal question of the methods of operation as having anything to do with my opinion as to the capacity of this physician to do work in the hospital within his qualifications. Those are entirely different questions, according to my mind.

Q.—Then, Dr. Cabot, on that question, the question of the qualifications that a doctor-applicant must possess in order, in your opinion, to be admitted to courtesy privileges at a hospital, at least in the first instance and under wraps, let me put this question to you. Suppose the applicant for courtesy staff privileges had graduated from the University of Oklahoma or from the University of Oklahoma Medical School, and had practiced privately in one of the large cities of the United States, both medicine and general surgery, for a period of about nine years; suppose, further, that after completing those nine years, that doctor had enrolled himself as a postgraduate student in the postgraduate school of surgery, in the University

of Pennsylvania, in Philadelphia, and suppose that he had completed satisfactorily the two-year postgraduate course and had received there his degree of Master of Medical Science, and suppose, further, that during that two-year course and as a part of it that same applicant held a residencehip in surgery at the Worcester, Massachusetts, City Hospital under a preceptor appointed for him under the postgraduate school in Pennsylvania; suppose, further, that while he held that residencehip he performed, satisfactorily to his preceptor, several hundred operations, some of them major and some of them minor, some of them in which he acted as an assistant and some of them in which he took the lead, and suppose that a great deal of that surgery was abdominal or pelvic surgery: what opinion would you give the hospital to which this surgeon applied for courtesy staff privileges as to whether, in the first instance, at least, he might safely be admitted to courtesy staff privileges in the hospital?

A.—I have a very definite opinion in regard to the course of the University of Pennsylvania Medical School. During my time at Ann Arbor, Mich., I was one of their regular preceptors and had, most of the time, one or more graduates under my care, and I am familiar with what they expected of them. I think those students got a very good training in general surgery. There are many special departments of surgery in which, of course, they did not get training. But I do not think that the University of Pennsylvania puts its stamp of approval on men who are not pretty well qualified to do general surgery. They are careful and diligent in their study and qualifications, and a man having received such a degree, I should feel required to admit him to the staff for the practice of general surgery, with reasonable limitations as to the more difficult and trying situations.

Q.—Suppose that applicant, Dr. Cabot, happened to be the general surgeon for a large group of patients associated in a prepayment clinic: would that influence your decision against advising the hospital to take him as you have stated?

A.—Oh, no. The only question with which I should be concerned would be his qualifications and the suggestion to the hospital of the extent to which they ought to provide supervision.

Q.—Would the fact that he was associated as a general surgeon for this group of patients have any bearing one way or the other in your opinion?

A.—No, sir. I assume that what the hospitals want of me is the value of my opinion, if it had any value, as to his qualifications. It does not seem to me important whether he is dealing with a group of patients or with his own private patients.

THE COURT:—Let me suggest that one or two of your questions have been repetitious. I do not want to take up too much time on these things. Please try not to repeat.

By Mr. Lewin:

Q.—And would the fact that the applicant has applied for a great many privileges at that hospital rather than confining his application to one or two types of surgery affect the advice you would give the hospital with reference to his application?

A.—It would depend on what those fields were. If he had asked the privileges in an unreasonably large group of special fields, I should doubt whether his training at the University of Pennsylvania justified granting his application with respect to all of them. I shouldn't hesitate at all to suggest to the staff some fields in which he was entirely competent; as to other fields, I should want to supervise his work carefully.

Q.—But would you hold against that man the fact that he had asked for broader privileges than perhaps those which you would accord him?

A.—Oh, I suppose most of us ask for more than we expect to get in most instances.

Q.—And do I understand you would recommend to the staff to admit him to those privileges to which you felt he was by reason of his training entitled, and deny him those privileges for which you felt he did not have adequate training?

Mr. Leahy:—Objected to.

THE COURT:—He may answer that question.

The Witness:—Oh, yes; I have no doubt I should do that.

By Mr. Lewin:

Q.—You may recall that on cross examination by Mr. Leahy you gave some testimony differentiating to some extent what you call the producer group from the consumer group of practice; and you were asked in effect on cross examination whether or not you would seek in advance, in forming a consumer type of group, advice solely from medical men. You testified that

in selecting a medical staff you would like the advice of a medical man. Let me ask you this: Whose advice would you seek in that situation with regard to the social and business side of the organization, as distinguished from the medical staff and medical equipment and facilities?

A.—Quite clearly the group has two or three very different problems with which it is faced. It is faced with problems which may be called strictly financial. Others I would define as economic, and certainly a group organization must take widely into account the social problems which are involved in this rather novel method of providing medical care. Now, in those problems, I take it nobody would suggest that an expert of the medical profession is also an expert in those other fields. As a matter of fact, I would think him less qualified than the average sound man in the street.

Q.—Then whose advice would you seek on the financial, economic and social questions arising in setting up such a prepayment clinic?

A.—I should try to obtain for my board, or for my organization, people who were properly regarded as wise counselors in those fields.

Q.—Would you go to laymen?

A.—Oh, yes; oh, certainly.

Q.—What type of advice would you seek from medical men only in forming such a consumer group?

A.—Advice concerning problems of medical organization, equipment and medical capacity. Clearly the medical profession are the only experts on whom the community may rely in those special fields; and clearly no one else is qualified to speak concerning them.

Q.—Now is there anything else you would seek; any other advice you would seek from the medical men?

A.—No.

Q.—And what types of information would you seek from the laymen in forming such a prepayment group?

A.—Of course, the lay group is concerned with the setup of the machinery about how a considerable number of people might obtain medical care by this rather modern method. Clearly that group must do its best to fit the plans which they make into the peculiarities of the community in which it is set up. Quite obviously the proper arrangement in a city, or in a district such as this here, should be quite different from what one would set up in an open country, such as in the West, or plain states. You could not make the same organization which would work equally as well under these very varying conditions, in different parts of the country.

Q.—Whom would you turn for advice of this nature: to laymen or doctors, in order to determine what kind of financing a prepayment group such as this should have?

A.—Laymen, I suppose. The doctors are or at least have the reputation of being the worst financiers in the world. It may not be quite correct, but they have that reputation.

Q.—To whom would you consult in determining the kinds of contracts which should be written for use in such a prepayment group?

A.—From my own personal experience, I should say lawyers handle such things, and generally produce documents which take care of such matters.

Q.—Would you think it was a reasonable thing in forming such a group, or in attempting to form one, to advise with persons who had formed other groups, other consumer prepayment groups in the country, and who were operating such groups?

A.—I suppose my weakness rises from approaching these problems by the scientific method, and, under the methods of science one assumes these things can't be done in vacuum. One looks to the experience of similar organizations elsewhere and from the accumulated evidence from which you can decide whether there are other organizations which fit your requirement, or whether there are some parts of one organization or some part of another which may be useful and applicable in your own structure, but where you have a more or less peculiar problem which must be set up it may be that the value of such other experiences will be diminished. However, I should want to base my decision on known existing practices of relatively similar operation.

Q.—And would you think it reasonable for the sponsors of such a group, before they launch the undertaking, to go to other groups and inspect their associations?

THE COURT:—Isn't that obvious that they would do so?

Mr. Lewin:—I hope so. It is to me.

THE COURT:—Well, from the doctor's previous answers isn't it quite obvious what the answer to such a question would be?

Mr. Lewin:—Well, your Honor, we are charged here with going into this thing with a half-baked organization, with not consulting with people who had knowledge on the subject, and therefore we want to make it clear.

THE COURT:—I don't want to be critical, but it seems to me that the testimony is not in the nature of expert testimony.

Mr. Lewin:—All right, your Honor.

By Mr. Lewin:

Q.—Now, Dr. Cabot, on cross examination, also I understood you to say, that you came down here to Washington on one occasion only to inspect the group health clinic, and to discuss its operation; is that correct?

A.—I didn't mean to convey that impression. I meant to convey the impression that I did come here on one occasion; I didn't mean to convey the impression that I only had been here once, or that I only came down on one occasion to the clinic.

Q.—Can you fix fairly definitely the first time you came, that is, the time when you went over to the clinic and saw it in operation; saw the pediatrician with the children, and the surgeon operating on the finger?

A.—I can fix it to this extent: I know that my brother, the late Dr. Richard Cabot, came down here on some occasion; it may have been at the opening of the clinic, about Nov. 1, 1937. That following that occasion he wrote me—we saw each other in those days rarely, living hundreds of miles apart—and he told me about it; and suggested to me that I ought to be interested in its development. Following that I had a letter from somebody here, maybe Mr. Kirkpatrick, to come down here. I couldn't say whether it was in December of 1937 or early in 1938, but it was relatively shortly after the occasion on which my brother was here.

Q.—Now let me, if I can, clear up one other point. Dr. Cabot, suppose a patient with very little income has a symptom of a complicated disease. Can he ordinarily obtain complete diagnosis and treatment from a single doctor?

A.—Not under modern conditions.

Mr. Leahy:—This is repetition, your Honor.

THE COURT:—I think so: I think you went into that on direct examination.

Mr. Lewin:—I am afraid there were several points that were not covered, your Honor.

By Mr. Lewin:

Q.—How many doctors might you expect such a man might have to obtain service from in order to be properly treated, under such circumstances?

A.—It wouldn't be unusual to require the services of from four to six more or less specialized people before you had the rounded evidence necessary to properly care for the patient.

Q.—And ordinarily would he be subjected to that number of individual fees?

A.—Oh, I think so, under normal conditions.

Q.—How many such doctors might such a person have to consult if he came to a clinic, like the Mayo Clinic?

A.—There the number would not be limited. He would be at once under the care of one of the general physicians, who would associate with themselves some of the younger men, the fellowship group, get the history and make the physical examination. He would then normally examine the patient himself. He would then call to his assistance any expert whom he thought could be helpful and might very easily call five or six. It would make no difference to him. He could call all the experts in the clinic if he thought they would be of any use at all. His business is to get the most rounded picture; it makes no difference how many people would be involved.

Q.—Would the amount of the fee that the patient would pay in the Mayo Clinic be determined by the number of men he received treatment from in the clinic?

A.—Oh, no.

Q.—Would you regard the fact that one of these group prepayment clinics did not hold itself out to do charity work for indigents as putting that clinic's operations in a class operating in what might be said to be against the public interest?

A.—Certainly not.

Q.—What is your reason for that?

A.—A group organization undertakes to do a perfectly definite thing, which is to provide complete medical care for its subscribers. It does not undertake to do anything else. Now, if it should spend the time of its staff in looking after people who are not subscribers then it would be guilty of an improper use of those funds, in my opinion.

Q.—Would you regard that clinic's operation as unethical, simply because it did not hold itself out to do charity work, but confined itself to its own subscribers?

A.—Certainly not.

Q.—Doctor, is it true that a doctor who devotes himself only to group practice, such as this, is neglecting his share of the responsibilities which the medical profession bears for the care of the indigent?

A.—I can't think so.

Q.—And what is your reason for that answer, Doctor?

A.—He is planning to give his services in a way which seems to him to enable him to make use of his training to the best advantage, and his arrangement with this group gives him a satisfactory opportunity to use his skill and his knowledge; and, after all, that I think is the opportunity which he should take advantage of; the chance to use his skill in the treatment of sick people.

Q.—Just how can the "fee-for-service," Doctor, afford to take care of the indigent, and assume a share of the burden of taking care of the indigent?

A.—The time-honored method is by levying an unconscionable and illegal, an unauthorized tax, an income tax, and surtaxes on a relatively small class of the population who are classified as rich. They pay large fees which, in the aggregate, authorizes him to spend his time in a very desirable way in looking after people who can pay him less than the cost, or nothing at all. He obtains funds from one group which enables him to carry on his work and live in decent fashion, while also looking after a group of people who can contribute nothing.

Q.—And the group practice, Doctor, under the prepayment plan, has not the same opportunity of soaking the rich for the benefit of the poor; is that what you mean?

A.—He is, as a rule, on a salary or some similar arrangement, under which, as I think very desirably, it makes no earthly difference to him whether the patient has money or no money; that is the business for the management; to organize the group, take care of those things. That settles the question for him.

Q.—Now suppose a doctor of one of these clinics, who is employed on a full-time basis, and can't take care of the indigent at a hospital, applies to the hospital for courtesy staff privileges: should the fact that he cannot serve on the regular staff and take care of the indigents prevent him from receiving courtesy staff privileges?

A.—Courtesy staff privileges, or staff privileges, are essential for him to carry on his proper medical practice. The practice he assumes to carry on there comes from the group by which he is employed. Certainly no stigma is attached because he practices on patients who have subscribed to this organization by which he is employed.

Q.—Now, Mr. Leahy also asked you on cross-examination what you thought of the American Medical Association Journal, and you replied that, in your opinion, it was the outstanding medical journal of the world. Now let me ask you whether in making that answer you were not referring to THE JOURNAL's activities—

Mr. Leahy (interposing):—I object to that question; to the direct character of the question.

THE COURT:—Yes, the question is leading.

Mr. Lewin:—I will be glad to reframe the question. I thought there was no question about it.

By Mr. Lewin:

Q.—Let me ask you, Dr. Cabot, in making that answer what particular activities of THE JOURNAL had you in mind?

A.—I was thinking of THE JOURNAL as a whole. For a great many years, the greater part of the whole of THE JOURNAL was devoted to the printing of scientific papers; it provided or contributed in providing, in its small beginnings, to the literature of medicine published in this country and foreign countries, and it was essentially a scientific journal. Now, in rather recent times there has been developed there another section, a subordinate section of the journal, which dealt with problems rather loosely referred to as medical economics.

Q.—What distinction do you draw between those two branches of THE JOURNAL?

A.—In its scientific phase, which has been throughout my lifetime its most important phase, it has stood solidly on scientific ground. It has selected from the papers offered, many of which are read at its annual meeting, documents of great value; but also from other sources papers which in the judgment of the editor were of high quality, and I think it perfectly safe to say that very few second or third rate articles on the science

have appeared, at least within my memory, in that journal. It has been in the habit, as is the habit of science, of allowing physicians who, having read a given article on the subject with which they are familiar, to write letters to THE JOURNAL sometimes polite and sometimes very impolite—pointing out their disagreement with statements made in those journals, and, I think, it has been the common practice of THE JOURNAL to submit such letters to the authors of the articles and, in that way, give reasonable opportunity for the presentation of opposite points of view and discussion. That is the normal method of science: you don't close the door and say here is a statement which nobody may dispute.

Now a quite different policy has been established in regard to the sections on medical economics. There, in the first place, many of the articles are prepared by members of the permanent staff of the A. M. A.

Q.—That is the salaried staff?

A.—Yes; and also from outside sources, but they are prepared often for the purpose of producing a perfectly definite point of view which may or may not represent the scientific view. Very seriously, as I think, there has been allowed no opportunity for discussion of these presentations. Many of them have been, in my judgment, and in the judgment of a good many other people, a pretty incomplete statement with very important omissions and yet, they are the source of information of a large number of busy physicians who cannot possibly go to original sources. Now, I have felt very strongly that it was essential that there should be a possibility of pointing out these omissions and weaknesses, and the differences of opinion which has been done regularly in the scientific portions of THE JOURNAL. This has been frowned upon and has been, I think, a very serious detriment to the proper presentation of the facts in these fields, using the normal scientific method of presenting the evidence and allowing criticism, where the evidence seems grossly incomplete. I would go so far as to say that there have been many articles published in that section of THE JOURNAL which would not stand up under criticism a moment and which if presented to a scientific body would be torn limb from limb.

Q.—Now, Doctor, you mentioned to some extent the function of the judicial council of the A. M. A., and I think you said that the Judicial Council passed on appeals from members of the local societies, who had been disciplined or expelled. Do you know whether there is any stay of the order of expulsion, or whether or not the local society, while the appeal is pending, whether or not the order of the local society does not stand and is effective pending the appeal, would the effect of the action of the Judicial Council, if it is favorable to the physician, be to reinstate him?

A.—I don't feel very clear about the precise limitations of that power. I would assume from what I know that the expulsion of a member did not really stick until it had been passed upon by the judicial council, if it was appealed to them; but I wouldn't like to be very dogmatic about that.

Q.—Who promulgates the rules and principles of ethics, medical ethics of the A. M. A.?

A.—It is done certainly under the supervision and authority of the delegates.

Q.—Of the A. M. A.?

A.—Yes.

Q.—And are those rules binding on the local societies, and upon the local members?

A.—I think they are intended to be.

Q.—Is there any machinery set up by the American Medical Association for applying those principles of medical ethics?

A.—I know on various occasions the questions have been referred to the Judicial Council for interpretation.

Q.—In your opinion should such principles of medical ethics lay down rules dealing with the economic side of the distribution of medical care?

Mr. Leahy:—I object; I don't think it is a proper subject for expert testimony.

THE COURT:—I don't think he completed the question.

Mr. Lewin:—I asked the witness, Doctor, in your opinion, should such principles of medical ethics lay down rules dealing with the economic side of the distribution of medical care?

THE COURT:—Both sides have been so liberal in asking the opinion of the Doctor; it has gone so far that I can't at this time say that the Doctor shouldn't answer this question.

Mr. Leahy:—All right, your Honor.

The Witness:—I have an uneasy feeling that when the ethics which are supposed to guide a profession undertake to invade fields of which they cannot have any particular knowledge, you are getting on pretty thin ice; and I dare say that the opinion of men who may be experts in the medical field

when applied to economic questions would not be very binding on anyone. I would frankly say that I should feel very much inclined not to be bound by them myself.

RE-CROSS EXAMINATION

By Mr. Leahy:

Q.—Doctor, you will agree with me, won't you, that the American Medical Association is composed of practically 115,000 doctors in the United States?

A.—The last knowledge I happened to have; the last annual. I happened to notice I think stated it at about 110,000, but I don't keep accurate track of that.

Q.—You would think that the opinion of 110,000 doctors should be worth consideration, wouldn't you?

A.—Yes.

Q.—Particularly, with reference to matters of the medical profession, isn't that right?

A.—I don't think I understand your question as it relates to "matters of the medical profession."

Q.—Well, with the practice of the medical profession.

A.—Yes.

Q.—Do you think their opinion is of value and that is in fact the only expert opinion with respect to the methods by which the profession should be conducted?

A.—In so far as that it confines itself only to the question of medicine, yes; but I should not take that opinion seriously when it involves questions of finances, economic or social readjustment.

DISAGREEMENT WITH PRINCIPLES OF ETHICS

Q.—Do you think that there are any principles of medical ethics as they have been adopted by the American Medical Association with which you cannot agree?

A.—Yes.

Q.—Which one?

A.—Well, I am interested in the very complete prohibition of what is known as "solicitation," the phrase, if I remember it; the provision that solicitation by individuals or groups, or by organizations is strictly forbidden.

THE COURT:—This question has nothing to do with this case, so far as I understand it.

Mr. Leahy:—Your Honor, it will be in the case.

Mr. Lewin:—Yes, your Honor, I think so.

THE COURT:—Well, if both sides agree, he may answer it.

By Mr. Leahy:

Q.—Well, Doctor, do you believe in a doctor advertising?

A.—I think I would like to answer the question. I think I observed in this group in California which was set up in the last few years, with a very broad offering of medical services—it was known as the California Physicians' Service, I think—that a very considerable sum of money was used for what you, if you were selling insurance, would be called solicitation. I was still more interested in a recent bill put forward by the Massachusetts Medical Society, concerning which there was published in the *New England Journal of Medicine* a statement of the purposes of the bill, in which it was directly stated that about 10 per cent should be used for solicitation. That being the case, I don't think that particular provision of the A. M. A. should be taken very seriously. Organized medicine has chucked it out of the window, and I think the rest of us need not concern ourselves about it.

Q.—You mean they have chucked what out the window?

A.—They have chucked out the absolute prohibition of the solicitation in medicine as a violation of ethics; chucked it out the window and, as I think, have very wisely adopted modern conceptions, and let their rule look out for itself.

Q.—Now, was there any other principle of ethics with which you disagreed?

A.—Yes, there was a principle of ethics which is less binding now, which forbade physicians to consult—I am not quite sure of the phrase, with irregular practitioners, the implication being that members who were not members of the medical profession should not be in consultation with men who are. Now for thirty-five years I have disagreed with that prohibition, and I have never embraced it.

Q.—How long has that particular principle of ethics of the American Medical Association been in force?

A.—Very long, indeed. There was a fierce controversy. Homeopathy was the principal *bête noire* of the American Medical Association, and then there came along a group known as osteopaths. There was a strict prohibition against consulting with these people.

Q.—Do you know whether that was ever adopted by the American Medical Association or not?

A.—I would not like to be too dogmatic about that. I know it was in the state, in the Massachusetts code, and I think still is.

Q.—The code of ethics of the American Medical Association is quite a long code, isn't it?

A.—Yes.

Q.—Do you know how long your profession has been acting under a code of ethics?

A.—Certainly for many years. The origin of the document which we now use goes back more than a century, and I suppose in pretty definite form, perhaps for a century and a half; and, of course, the fundamentals of the code of ethics—unless I have been grossly misinformed—was laid down by Hippocrates. The Hippocratic code contains an oath of the requirements of decent and professional probity which we are trying to get at.

Q.—Now, do you think that the individual professional man should advertise his wares?

A.—I do not.

Q.—You think it is when a group of individuals get together that that group should have the right to advertise; is that it?

A.—I think the point comes where the public interest is involved. Here are new methods by which it is suggested that the public may obtain good medical care at more or less definite rates. It seems to me absolutely essential that there should be a satisfactory method, and unprejudiced methods by which the public may obtain this information. The prohibition is likely to make it difficult or impossible for the public to obtain information on which they can come to a conclusion.

Q.—Does the Mayo Clinic advertise?

A.—You put me in an awkward position, sir. There have been times when I thought they had come pretty close to the line.

Q.—Now, does the Mayo Clinic solicit people to come to it?

A.—No.

Q.—Does the Lahey Clinic in Boston solicit patients to come to it?

A.—I should be unwilling to say that it did not.

Q.—Does it advertise in the papers asking for or soliciting patients to come there?

A.—No.

Q.—Can you name a producer clinic that advertises?

A.—I don't think so, sir.

Q.—The only advertising clinics now which you say ought to have the privilege of advertising are these consumer clinics that grew up in the last ten years?

A.—No, sir.

Q.—Do you know any consumer clinic which has not tried to advertise?

A.—I think I do; the group with which I have been associated myself.

Q.—Well, excluding your group.

A.—I should be unable to say what was the practice of consumer groups; it would assume an omniscience which is beyond me.

Q.—Well, you do believe in the consumer method, do you?

A.—I very much want to see it tried on an experimental basis.

Q.—Well, have you any data yet from your experience or your readings about which you can state to the jury that the consumer group type of practice of medicine is an assured successful one?

A.—Well, I am very interested to note that the Northern Pacific Railroad has had a group method of medical care since 1882, and the evidence I believe is to the effect that it is successful.

Q.—Well, Doctor—

Mr. Lewin: I don't think he has finished his answer.

Mr. Leahy: Very well.

The Witness:—Then I think the group, the Stanocola Group, in Baton Rouge, Louisiana, has been doing this work, and that is a consumer group.

Q.—Well, on your various trips to Washington didn't you learn that there were eight groups which were similar in organization to the Northern Pacific group and the Stanocola Group which you have just told us about?

A.—I don't think I got the information in Washington.

Q.—You didn't know that they had been operating in Washington for years?

A.—Who?

Q.—These groups. Didn't you while you were here studying Group Health know that for instance the Market Compensation Accident Clinic had been in operation here for years?

A.—No, sir. Never heard of it.

Q.—Did you know the Union Market Workmen's Compensation Clinic had been in operation here for years?

A.—No, sir.

Mr. Lewin:—Your Honor, all of these questions were asked before.

THE COURT:—I think it is repetition.

By Mr. Leahy:

Q.—You didn't know then that any of those group clinics were operating?

A.—No, sir.

Q.—Well, those are a different type from Group Health?

A.—I don't know a thing about it, sir.

Q.—Well, is the Northern Pacific Clinic similar to Group Health?

A.—No. It is under different conditions; it couldn't be.

Q.—It is an employment group, isn't it, the Northern Pacific, attempting to take care of its employees?

A.—Oh, no, no.

Q.—What is it?

A.—The Northern Pacific isn't attempting to take care of the employees; the employees are attempting to take care of the employees.

Q.—With the cooperation of the Northern Pacific?

A.—I couldn't say how much cooperation they have had.

Q.—And is the Stanocola Clinic which you mentioned also a clinic which is restricted to the employees of the Standard Oil Company?

A.—Employees and their dependents.

Q.—Employees and their dependents. And do you know now whether the Standard Oil Company cooperates with their employees in attempting to take care of them for injuries received or suffered in the service?

A.—Of course, the Standard Oil Company is responsible for those things which come under the Compensation Act, so there must be some reasonable articulation between those things which the company is required to do and those things which the association provides.

Q.—But now the clinic of the type of G. H. A. is built along a different theory, isn't it?

A.—I should not think so, sir.

Q.—Well, the Group Health or any of these consumers clinics take in anyone who will subscribe for the service. Isn't that true?

A.—Well, I rather thought it was intended to confine it to a group of people who were here in Washington employed by the Government.

Q.—That's right. Also any one of that group who will subscribe to the service is entitled to the service?

A.—Therefore it is just like the Northern Pacific.

Q.—But state who is entitled to the service. Is it the sick man or the well man, do you know, upon entrance?

A.—I suppose anybody that subscribes therefore becomes entitled to the service. I suppose they wouldn't take him at the moment if he happened to be sick abed, they would think they had better wait and let him get well.

Q.—Well, why would they do that? Isn't the sick man the one who needs medical care when he is sick?

A.—Oh, quite.

Q.—What do the groups do for the sick man then when he is sick?

A.—Look after him.

Q.—They don't look after him though if he is sick when he wants to join?

A.—I think they require their members not to overload themselves with an unreasonable number of sick men at the time of admission.

Q.—Why do they do that?

A.—In order that the funds contributed by the various subscribers will be prudently used.

Q.—In other words, otherwise the funds of the organization wouldn't be sufficient to take care of an overloaded group of sick people?

A.—They must have an average cross-section of the population, and it is upon that basis that they assume ability to do the job.

Q.—Well, what proportion, have you any statistics upon it, does this consumer group take in people who are ill and who want to join the association for care because they are ill?

A.—You refer to this particular group in Washington?

Q.—Yes.

A.—I couldn't answer, sir.

Q.—How about any other group that you know about?

A.—The custom in groups that I know to admit patients is for some of them require a physical examination for admission. If that patient has certain disabilities, those are made exceptions for which further payment must be made. They try to get a group of average people; many of them except people over a certain age, just as insurance companies do; and there are various other exceptions.

Q.—Now, who is going to take care of the sick person or the sick people who cannot belong to the consumer group without overloading it?

A.—Oh, there is no prohibition of their being looked after by the consumer group. The only prohibition that I am aware of is that they cannot be looked after under this particular contribution which is regarded as sufficient.

Q.—You have just told us, Doctor, that the consumer group cannot overload itself with too many sick people, haven't you?

A.—At average admission rate fee, sir.

Q.—If they do, they must charge additional fees. Is that right?

A.—Yes, sir.

Q.—Or else leave the general doctor to take care of him?

A.—Yes.

Q.—That's right, isn't it?

A.—Yes.

Q.—In other words, if the group on physical examination—haven't you found it to be the practice, that where the member of that group is suffering from some ailment requiring treatment, he isn't admitted?

A.—It would be very hard for me to generalize. I know that they are frequently admitted with these conditions specified for which either extra payment or treatment outside should be obtained.

Q.—Have you ever studied the by-laws of the Group Health Association of the District of Columbia, Doctor?

A.—No, sir.

Q.—Has any one ever presented them to you for your advice?

A.—I don't think so.

Q.—Doctor, you stated that in your judgment if the American Medical Association insisted that all hospitals should have on their staffs only members of the American Medical Association, that that would be going outside the field of the American Medical Association.

A.—I don't remember saying anything that I should understand means that, sir. Could we read my answer?

Q.—I will put the question so we won't take up time in going back to it:

Do you think that the American Medical Association, composed as it is of all these doctors, should keep in close contact with the affairs and the administration of the hospitals throughout the country?

A.—Oh, yes, sir.

Q.—You think that it is in the public interest?

A.—I clearly think so.

Q.—Do you think it is in the public interest that they should inspect the hospitals in order to determine whether or not those hospitals are maintaining the standards?

A.—I think it is important that they should inspect them in order to have an opinion which they may then place at the service of the public, as represented by the trustees.

Q.—Do you think that the American Medical Association would have or would be within its proper sphere of activity if it sought to establish a policy in the hospitals by persuasion, advice, that the members of the hospital should be members of the American Medical Association?

A.—Well, I should think they would cut pretty close to the line of trying to mind somebody else's business.

Q.—With respect to what?

A.—With respect to telling an organization what it should do. I don't quite like the notion that a group can advise these trustees for the public interest what they may do and what they may not do. That doesn't smell good to me.

Q.—Well, didn't you tell us that the board of trustees usually sought the advice of the medical profession as to those members who ought to be appointed on the staff?

A.—Oh, quite. They seek their advice. That is the point, they are not required to follow it. I think they must retain their own independence of action.

Q.—That is the point which I wish to bring out, Doctor. If the board of trustees in a hospital asks the medical profession with respect to the appointments upon its staff in a given

hospital, is it contrary to the public interest, in your judgment, that the medical society of that particular locality should recommend its own members?

A.—Oh, no.

Q.—Or should recommend that the board should try to select its members on its staff from its medical society?

A.—As long as it remains in the field of recommendation they are on perfectly sound ground.

Q.—In other words, the trustees should always have the jurisdiction to appoint. Isn't that right?

A.—I think they must, sir.

Q.—Yes. But there is no harm in some one making a recommendation or suggestion to the trustees and stating the reason for such advice, is there?

A.—No. I think it is very important they should.

Q.—Now, Doctor, you have discussed your answers, haven't you, since you gave them last Friday to counsel for the prosecution?

A.—Yes.

Q.—You went all over what you said last Friday to the jury in preparation for your re-direct examination this morning on the stand, didn't you?

A.—Oh, Lord, no.

Q.—Didn't you read over your testimony?

A.—No.

Q.—Did you have it read over to you?

A.—Indeed not.

Q.—Have you discussed the answers which you gave to certain points in the questions?

A.—Certain answers were discussed, yes.

Q.—And one of those answers which was discussed with you was the answer with reference to what in your judgment was the necessary advice you should seek from doctors in forming a group association?

A.—I don't think so.

Q.—You will recall that you made this answer on Friday last, that you considered that any group which was about to organize a group for medical care needed the advice of physicians?

A.—Oh, yes.

Q.—Do you still stick to that answer?

A.—Sure fire.

Q.—All right. Now, they need the advice of physicians with reference to what?

A.—To the problems involved in medical care and the necessary equipment to give it.

Q.—Now, who ought to give that advice?

A.—The members of the medical profession.

Q.—Do you think that if a group were to organize itself here in the city of Washington that it would be wise for the group to discuss those questions you just gave us with the Medical Society of the District of Columbia or its members?

A.—I wouldn't be fussy about discussing it with the society.

Q.—Or the various members thereof?

A.—I should discuss it with the physicians whose opinions I value.

Q.—Would you think that any particular reason existed why the members who are promoting the group should not discuss it with any members of the local society?

A.—No, no.

Q.—Can you think of any reason now why a group attempting to form a group for the distribution of medical care should avoid discussing it with the members of the local medical association?

A.—Well, just as before, they must discuss it with physicians. It isn't in my opinion necessary that all of those physicians should be members of the medical society. There may be some very wise people, there have been all over the country, who are not members, and I should regard their judgment as of interest. Certainly a majority of the people they consult will be members of the medical society.

Q.—Well, is there any reason which exists to your mind why a member of the local medical society should not be called in for advice?

A.—No.

Q.—In other words, membership in the local society ought not to exclude a member as one who could advise on those questions you have just told us?

A.—No.

Q.—What particular problems were there in connection with the establishment of a group health plan, consumer group, which would require a discussion with others than doctors?

A.—Oh, the whole problem of finance, that is to say, the methods of raising money, how much—what size of fund you ought to have in order to make it possible to do the things

that ought to be done; the very difficult problem of charges in regard to the subscribers and for his dependents at various levels. Those are questions in which the medical expert has no particular qualification.

Q.—Who do you think should determine what equipment is required, a doctor or a businessman?

A.—The kind of equipment should certainly be determined by a physician. The precise details of purchase for instance, and so forth, are business problems.

Q.—Who would determine the quality of care which should be given to the members of the group?

A.—It cannot be determined by anybody but physicians, sir.

Q.—Who would determine the number which should constitute the staff in order to give complete medical care?

A.—Well, I should have to say God only knows. I don't think anybody is capable of doing it in the present state of our knowledge.

Q.—Who could best approach it, the doctor or the businessman?

A.—Well, there are a number of people who are not physicians who could bring to that discussion evidence as to the number and kinds of physicians that have in fact been used in other organizations, and I think there are some opinions in this country by people who are not physicians in whom I should be interested. As a rule, however, it is a medical problem.

Q.—Doctor, you mentioned on your re-direct examination some of the articles in the American Medical Journal which you stated would be torn limb from limb. Could you name some of those articles?

A.—Well, there was a series of articles which dealt importantly with the development of compulsory health insurance in England and in other countries. I read them with care, it being a field in which I have long been interested. There were very important omissions there which I think would have raised violent comments if they had been presented before a scientific body as a scientific paper. They were obviously intended to drive home a particular point which it was the desire of the organization to drive home.

Q.—Who wrote the articles, do you know?

A.—Well, a good many of them were written by members of the paid staff and I assume came under the purview of Dr. Fishbein as editor.

Q.—Were they editorials?

A.—There were editorials referring to them but I was at the moment thinking largely of articles such as might have properly been presented at scientific meetings.

Q.—Could you tell us about how long ago they were written?

A.—Well, they began to appear in the middle 20s. I couldn't fix the date accurately. But of course they went on for a number of years, probably over a period of ten or more years. And they have been more or less appearing since.

Q.—Now, were there any others than on group compulsory insurance?

A.—Yes, there were comments on group organizations and the attempts to experiment in the formation of groups, in which it seemed to me that a very biased opinion was expressed, and one intended to convey to the busy physician through the only source which he is likely to read, a very incomplete opinion.

Q.—Now, Doctor, one other question. Do you mean to say that if you knew that a doctor was connected with some organization which the District Attorney had told you was engaged in illegal practice, that you would advise the hospital upon whose staff you were a member, to accept a doctor who was thus engaged in furthering what the District Attorney had declared to be illegal?

A.—Well, I wasn't aware that an opinion by a district attorney constituted a legal prohibition. It is an opinion, is the answer.

Q.—But you, in disregard of that opinion, would still recommend that doctor?

A.—I should recommend them to examine his qualifications, and if he had the qualifications, I see no reason why he shouldn't be admitted to the hospital, the same as any other physician is.

Q.—Even though by recommending him you would be assisting in the continuation of a practice which the district attorney had declared in his judgment to be illegal?

A.—I should want to know what the facts were, not what somebody's opinion was.

Q.—Then you wouldn't regard the district attorney's opinion in the matter at all?

A.—I don't believe I would, sir.

Q.—Suppose you had the supporting opinion of the responsible prosecuting officer for that particular city and they both agreed that it was illegal, would you still admit that doctor, or recommend his admission to the hospital?

A.—Well, my experience with such opinions has been that they stood about as good a chance of being wrong as right, and I wouldn't want to be bound by them until they had something further behind them.

Q.—And you wouldn't consider then that it would be well to wait until you found out whether the District Attorney and the responsible prosecuting municipal officer were right or wrong?

A.—I don't think it would bear upon the qualifications of a physician, which is, after all, the point on which I am giving advice.

Q.—Supposing the physician was qualified but he wasn't licensed to practice, would you still recommend his admission to the hospital?

A.—I don't suppose he could if he wasn't licensed—

Q.—Well, he has all the qualifications. Would you recommend him if he didn't have a license?

A.—If I did recommend him it would have no effect. He couldn't practice.

Q.—Well, would you?

A.—No. Of course I wouldn't.

Q.—But you still maintain that you would recommend a doctor who was qualified even though you had the responsible opinion of those two men in the community that the practice in which he was engaged was illegal?

A.—Well, the things are of entirely different order. One is a legal fact, he is licensed by the proper authority. The other is an opinion given by an officer of the law but having no standing with me until it has gone further than that.

Q.—Let us go one step further and let us say the question of whether or not the practice was legal or illegal was then before a Judge in the Court in that particular community. You would still in that state of the case recommend that the doctor should be admitted to the practice in the hospital? Or would you say "Let us wait and find out about this practice?"

A.—I have regarded it as due respect to a Court not to act in a matter while questions were before the Court. I think that is quite different from acting in the presence of an opinion. If it is before the Court I think I should be required to wait until that Court had issued a judgment.

Q.—That's all.

FURTHER RE-DIRECT EXAMINATION

By Mr. Lewin:

Q.—These articles that you criticized appeared in the American Medical Association Journal and were the articles dealing with medical economics. Is that right?

A.—I suppose that ought to cover the definition. They deal with kindred matters.

Q.—Did those articles in your opinion represent the individual advice and opinion of 110,000 individual doctors?

Mr. Leahy:—I object to the question as too leading.

THE COURT:—Obviously, Mr. Lewin, he said they were written by particular persons.

Mr. Lewin:—Mr. Leahy asked this witness whether he would give weight to the opinion of 110,000 doctors. Obviously his question was addressed to these economic questions.

THE COURT:—I think we will save time to let the doctor answer.

The Witness:—Can the question be read again?

(The pending question as above recorded was read by the reporter.)

The Witness:—Oh, no. Obviously, it is out of the question.

By Mr. Lewin:

Q.—And would you say, speaking generally, that this section of THE JOURNAL which deals with medical economics or organization, and all that sort of thing, that those views there expressed represent the individual views of 110,000 doctors?

A.—Oh, no.

Q.—Suppose that the A. M. A. indicates to a hospital that the hospital may be withdrawn from its approved list for intern training and resident training unless it confines its staff to members of the A. M. A., would you think that went beyond advice and recommendation?

A.—I should think it was a grossly improper procedure intending to do something which is wholly against public interest.

Q.—You wouldn't include that sort of a situation in the desirable advice and opinion that you think hospitals ought to seek from the medical profession?

THE COURT:—Mr. Leahy has already asked him that and he has already answered it, Mr. Lewin. One answer covers both the questions.

By Mr. Lewin:

Q.—You were asked your opinion on certain principles of the medical ethics of the A. M. A. I want to ask you what your opinion is of this principle of the medical ethics of the A. M. A. dealing with contract practice. It is as follows:

"Certain features or conditions if present make a contract unethical, among which are"—

and then they list seven criteria, and the seventh is:

"If the contract becomes because of any of its provisions contrary to sound public policy."

Would you care to comment upon the desirability of that kind of principle?

A.—Why yes. It is news to me that a medical association or any other professional association is a proper judge for me of what is in the public interest. I don't think they are endowed with the ability to decide. I shouldn't pay the slightest attention to it.

Q.—You shouldn't pay the slightest attention to it.

A.—Not the slightest.

Mr. Lewin:—Well, I think in deference to your Honor's request I will retire from examination.

THE COURT:—Anything more?

Mr. Leahy:—I just want him to identify one article, if your Honor please.

FURTHER RE-CROSS EXAMINATION

By Mr. Leahy:

Q.—Doctor, are you familiar with this article in the *American Magazine* (indicating)?

A.—Yes.

Q.—"Give the patient a break?"

A.—Yes.

Q.—You have read that article?

A.—Yes.

Q.—Are those your views as expressed in the article?

A.—In general terms, yes, sir.

Mr. Leahy:—May it be identified as Defendants' Cabot Cross-Exhibit No. 1?

(The magazine entitled *American Magazine* was marked Defendants' Cross-Exhibit No. 1, for identification.)

DR. BOWMAN C. CROWELL

DIRECT EXAMINATION

By Mr. Kellcher:

Bowman C. Crowell, Chicago, said he had devoted the most of his life to pathology.

He is associate director of the American College of Surgeons, which has something over thirteen thousand fellows.

Q.—How is fellowship in the American College of Surgeons obtained?

A.—First on application and the presentation of proper credentials. Do you wish me to explain?

Q.—Yes. Will you explain what the credentials are?

A.—The applicant must have been graduated from medical school for at least seven years and have filled out the formal application blank giving references to surgeons who are acquainted with him and his work. That application is presented to local credentials committees. If approved by them, after having seen the applicant and talked with him—if approved by them, he has to submit to certain other qualifications and presentation of records of surgical work that he has done.

Q.—When was the American College of Surgeons founded?

A.—In 1913. The articles of incorporation were in 1912.

Q.—Who was the leader in founding the organization?

A.—Dr. Franklin H. Martin. There were four or five among those who founded it. Dr. Franklin H. Martin was one; Dr. John B. Murphy, Dr. Edward Martin of Philadelphia, Dr. A. J. Ochsner, and one or two others.

Q.—Now, Dr. Crowell, will you describe to the jury in a general and brief way the nature of the activities of the American College of Surgeons?

A.—The College was founded for the purpose of improving the standard of the practice of surgery. It has engaged in a number of activities. One of its prime activities has been the standardization of hospitals, which was undertaken in 1918 for the improvement in the conditions surrounding the surgeon where he has to do his work for the benefit of the patients.

He said the American College of Surgeons inspects hospitals and approves those that meet its standard. It does not require that hospitals approved by it have on their staffs only members of the American College of Surgeons or of the American Medical Association. It is an international organization and approves hospitals other than those in the United States.

He then described in general terms the work of the American College of Surgeons.

THE MEDICAL SERVICE BOARD

Q.—Now, Dr. Crowell, did the American College of Surgeons ever have what was known as a medical service board?

A.—It did.

Q.—By whom was that board appointed?

A.—By the president of the organization at that time.

Q.—Who was the president at that time?

A.—As I recall it, it was Dr. Bentley Squier.

Q.—What was the purpose and what were the duties of the Medical Service Board of the American College of Surgeons?

A.—To study the provision of more adequate medical service to the communities.

Q.—What were the circumstances leading up to the appointment of this board by the president?

A.—General interest in the subject of the provision of more adequate medical service to the communities throughout the country and the desire of the board of regents to furnish to its fellows and the hospitals which were looking to it for guidance certain principles which might properly guide them.

Q.—Who were the members of the board?

A.—May I read them?

Q.—Is that the report of the board that you have there?

A.—This is the report of the Medical Service Board.

Q.—Will you refer to that and tell us who the members of the board were?

Mr. Burke:—Will you tell us in what year that whole thing happened?

By Mr. Kelleher:

Q.—When was this board appointed?

A.—On July 15, 1933.

The report to the board of regents was made on June 10, 1934, by the following committee: Dr. Robert B. Greenough, of Boston, chairman; myself as secretary; Dr. G. Harvey Agnew, of Toronto; Dr. Charles A. Dukes, of Oakland; Dr. Franklin H. Martin, of Chicago; Dr. C. Jeff Miller, of New Orleans; Eugene H. Pool, of New York; Arthur M. Shipley, of Baltimore; Dr. J. Bentley Squier, of New York; and Dr. S. Marx White, of Minneapolis.

Q.—I believe your testimony in naming the members has already indicated that they were all doctors?

A.—Yes, sir.

Q.—Were they all surgeons?

A.—No, sir.

Q.—Were they all engaged in private practice?

A.—No, sir.

Q.—Which doctors were not engaged in private practice?

A.—Dr. Agnew, myself, and Dr. Martin, although Dr. Martin had been in private practice previously.

Q.—Is it your testimony now that the rest of the members of the committee were engaged in private practice?

A.—Yes.

Q.—Did the board—the Medical Service Board—conduct the study for which it was appointed?

A.—It did.

Q.—What was the nature of the study which the board conducted?

A.—They were familiar with the findings of some other committees which had been studying this same subject—

Q. (interposing).—The findings of what committee?

A.—I was referring there particularly to the Committee on the Costs of Medical Care.

Q.—What is that committee, Dr. Crowell?

A.—I am unable to state by whom that committee was appointed; I have forgotten.

Q.—Do you know who the chairman of the committee was?

A.—No. No, I don't remember its personnel. It was a well recognized committee at the time.

Q.—Did the Medical Service Board make a report to the board of regents?

A.—It did, sir.

Q.—Was the report of the Medical Service Board unanimous, or were there any dissenters?

A.—To the best of my memory, unanimous.

Q.—Did you vote in favor of the report of the Medical Service Board?

A.—I don't recall that any formal vote was taken. It was generally conceded that this was the opinion of those who were on the committee as they sat around the table.

Q.—Did the board of regents take any action on the report of the Medical Service Board?

A.—It approved the report of the Medical Service Board.

Q.—What was the vote of the board of regents in approving the report of the Medical Service Board?

A.—I don't recall that there was any dissension.

Mr. Kelleher:—I will ask to have this paper marked for identification.

(Paper entitled "Report of Medical Service Board" was marked as United States Exhibit 7 for identification.)

(Counsel for all parties approached the bench and conferred with the Court. The conference was not recorded. Counsel then returned to the trial table, and the trial was resumed as follows:)

Mr. Kelleher (reading):

"Report of Medical Service Board.

"On July 15, 1933, on authorization of the Executive Committee of the Board of Regents of the American College of Surgeons, Dr. J. Bentley Squier, President, appointed a Medical Service Board to study the provision of more adequate medical service to the whole community. The Medical Service Board consists of Robert B. Greenough, Boston, Chairman; Bowman C. Crowell, Chicago, Secretary; G. Harvey Agnew, Toronto; Charles A. Dukes, Oakland; Franklin H. Martin, Chicago; C. Jeff Miller, New Orleans; Eugene H. Pool, New York; Arthur M. Shipley, Baltimore; J. Bentley Squier, New York; S. Marx White, Minneapolis.

"On June 10, 1934, the Medical Service Board made a report to the Board of Regents of the College which was approved by that Board. The report is a statement of principles which should be observed in the development and conduct of prepayment plans for medical and hospital service, and does not propose any specific plan. The report follows:

"Report of Medical Service Board of the American College of Surgeons, June 10, 1934.

"The Medical Service Board of the American College of Surgeons respectfully submits the following report to the Board of Regents.

"1. The American College of Surgeons affirms its interest and its desire to cooperate with other agencies looking toward the provision of more adequate medical service to the whole community.

"2. The College believes that it is the duty of the medical profession to assume leadership in this movement and to take control of all measures directed to this end.

"3. Encouragement should be given to the trial of new methods of practice designed to meet these needs, and a careful evaluation of their success should be the duty of the medical profession before they are offered for general adoption. All such new and experimental methods of practice must be conducted strictly in accordance with the accepted code of ethics of the medical profession in order that the interests of the patient and of the community may be protected.

"4. The College recognizes for immediate study four groups of the population for whom more adequate medical service should be made available, as follows:

"a. The indigent.

"b. The uneducated and credulous members of the community.

"c. Those who because of limited resources are unable, unaided, to meet the costs of serious illness and hospitalization.

"d. Those living in remote districts where adequate medical service is not obtainable.

"5. The care of the indigent sick should be a direct obligation upon the community and (unless otherwise compensated by intangible benefits such as staff and teaching appointments, opportunity and experience) physicians fulfilling this public service should receive remuneration.

"6. The College should work in cooperation with other medical groups in order to dispel the ignorance and credulity of the public, and to bring the people to a proper realization of the protective and curative resources of modern medicine.

"7. The American College of Surgeons recognizes that the periodic prepayment plan providing for the costs of medical care of illness and injury of individuals and of families of moderate means offers a reasonable expectation of providing them with more effective methods of securing adequate medical service.

"A number of different plans for the organization of such services have been proposed, although few have been in operation long enough to permit definite conclusions in regard to their success. It is to be desired that these experiments be continued. Conditions differ to such a degree in different parts of the country that a specific plan which is practicable in one place may require modification of details in other communities. The varying restrictions imposed by present insurance laws in different states further complicate the problem.

"Periodic prepayment plans providing for the costs of medical service may be divided into two classes:

"A. Payment for medical service.

"B. Payment for hospitalization.

"Plans for the payment of hospitalization alone (class B) without provision for payment for medical service may be considered the first project to be undertaken in the average community.

"The American College of Surgeons believes that certain general principles can and should be established, the observance of which will tend to obviate known difficulties and dangers which may threaten the success of these special forms of medical service. These principles are as follows:

"a. Periodic prepayment plans for medical service should be free from the intervention of commercial intermediary organizations operating for profit. After deduction of the clerical costs of operation of the fund and such accumulation of reserve as may be advisable in the interest of the contributors or may be legally imposed, the full amount paid by the contributors should be available for medical and hospital services.

"b. In the interest of the patient, the organization of plans for the periodic payment of medical and hospital costs must be under the control of the medical profession. The medical profession must act in concert with the hospitals and such other allied services as may be involved in the individual project, together with a group of citizens representative of the whole community and of industry who are interested in the successful operation of the plan.

"e. The principle of free choice of the physician and hospital by the patient must be assured to the end that the responsibility of the individual physician to the individual patient shall always be maintained. When hospitalization is required, this choice must of necessity be limited to the physicians and surgeons who hold appointments on the staffs of the hospitals participating in the plan or to those physicians and surgeons who are acceptable to the hospital. It is further recommended that only approved hospitals be admitted to participation in such a plan.

"d. The compensation of the physician and of the hospital should be estimated with due regard to the resources available in the periodic payment fund and should be based upon the specific services rendered.

"e. The organization and operation of any plan of this type must be free from any features not in accordance with the code of ethics of the medical profession which code has been established for the protection of the patient.

"f. The medical organization participating in such a plan must assume the responsibility for the quality of service rendered.

"8. Periodic prepayment plans for medical and hospital service should eliminate many of the conditions which have brought about the development of industrial contract practice. Until such plans have been more widely established certain general principles are here formulated with a view to the elimination of the commercial features of such forms of medical service.

"a. The Minimum Standard for Industrial Medicine and Traumatic Surgery of the American College of Surgeons should be accepted.

"b. Physicians and surgeons, qualified as in paragraph 2 of the above Minimum Standard, may properly be employed on a full-time or a part-time basis by industrial organizations to provide medical and surgical service for their employees, as follows:

"i. To provide emergency service and first aid in injury or disease, and to provide adequate medical or surgical care for industrial injuries and diseases. Medical and surgical care of the families of employees, and of employees themselves, except for emergency and industrial injuries and diseases, should be provided by the industrial physician only in remote districts where other adequate medical service is not available.

"ii. To provide preemployment and periodic physical examinations.

"iii. To study the hazards of the particular industry and to cooperate with other agencies in effecting such measures as may be needed for the prevention of injury and disease.

"iv. To keep accurate records such as may be required by local workmen's compensation laws, and so complete as to serve for scientific investigation of industrial hazards with a view to their further prevention. These records are privileged communications, subject always to due process of law.

"c. The sale of a contract by an industrial organization to an individual physician or group of physicians for medical and/or hospital service for its employees encourages commercial competition and is to be condemned.

"d. Unethical practices in publicity, advertising, solicitation, and competition, either of a professional or of a financial nature, must be eliminated.

"e. The accepted code of ethics of the medical profession, which is designed to protect the best interests of the patient, should apply to industrial medical service as to all other forms of medical practice."

By Mr. Kelleher:

Q.—Now, Dr. Crowell, I have just a few questions about this report. Will you refer to the first sentence of subparagraph a of paragraph 7, which reads:

"Periodic prepayment plans for medical service should be free from the intervention of commercial intermediary organizations operating for profit."

I should like an answer to this question: Was it the intent of the Medical Service Board to recommend against the use, in a prepayment plan, of a nonprofit organization to handle the administrative and clerical matters of the plan?

A.—You say, Was there intent to recommend against it?

Q.—Yes.

A.—I would not so interpret this paragraph.

Q.—In other words, that paragraph is limited to the intervention of commercial intermediary organizations operating for profit?

A.—As I read it, sir.

Q.—Now, will you refer to that part of subsection d, which says that the compensation of the physician should be based upon the specific services rendered and tell us what is meant by that language as used by the board?

A.—That the payment to the physician who participates in this plan should be proportionate to the service that he actually rendered and that he should not derive benefit—financial benefit—merely on account of being on the staff of a hospital which happens to render this service, unless he personally renders it. That is my interpretation of it.

Q.—You were a member of the board?

A.—I was a member of the board, sir.

Q.—Was it intended by that language to prevent the doctor from accepting a salary for his services in such a plan, provided the salary was commensurate with the services rendered by the doctor?

A.—I am not of the opinion, sir, that that condition was specifically considered in the preparation of this paragraph.

Q.—Did the board make any statement of principle concerning the propriety of a doctor's associating himself with prepayment plans on a salary basis?

A.—Not to my recollection.

Q.—Why not?

A.—Because the board was concerning itself with a statement of principles and not details of any specific plans.

Q.—Did the board consider that the question of whether a doctor should be paid a salary was a matter of detail, depending upon the particular type of plan?

A.—I should say so.

Q.—Now, will you refer to paragraph 8 of the report and tell the jury what form of medical service is meant by the language in the last sentence of that paragraph, reading "such forms of medical service"?

Mr. Leahy:—On what page is that?

Mr. Kelleher:—It is on page 3, the first paragraph at the top of the page.

The Witness:—There is a sentence there with two "such's" in it. The first "such":

"Until such plans have been more widely established . . ."

That means a periodic prepayment plan for medical and hospital service. Then:

" . . . the elimination of the commercial features of such forms of medical service."

I would say that refers to industrial contract practice.

AFTER RECESS, MONDAY, FEBRUARY 10

DR. BOWMAN C. CROWELL, DIRECT EXAMINATION
—RESUMED

By Mr. Kelleher:

Q.—Dr. Crowell, I have only one other question. Will you refer to subparagraph C, under paragraph A to the report of the Medical Service Board, and tell us whether the Board intended by that paragraph to condemn prepayment plans in which doctors participated on a salary basis?

A.—My impression of that paragraph is that it refers only to industrial contract practice and not to prepayment plans in general.

Q.—Will you tell us whether any of the principles set forth in subparagraphs A to E, under paragraph 8, were intended to apply to prepayment plans?

A.—They were dealing with industrial medical practice, and not the general prepayment plans under consideration.

CROSS EXAMINATION OF DR. CROWELL

By Mr. Leahy:

Q.—Doctor, would you explain to the jury, please, what you mean by industrial medical practice?

A.—Medical practice that is provided by industries or industrial organizations to provide emergency service and first aid in injuries or disease, to provide adequate medical or surgical service for industrial injuries and diseases.

Q.—Has that been quite prevalent and common?

A.—Industrial medical practice?

Q.—Yes.

A.—Yes, sir.

Q.—Over how many years?

Mr. Kelleher:—I object, your Honor, because Mr. Leahy's question goes beyond the scope of the direct examination.

THE COURT:—I think I will sustain objection to the second question. The first one I think is proper in clearing up an understanding of what industrial practice is.

By Mr. Leahy:

Q.—Doctor, did you have under consideration when this report was drafted any particular group scheme?

A.—No, sir. I was one member of this board. Whether other members of the board had any particular plans under discussion I do not know.

Q.—Have you any memory now of any discussion when you were formulating this report about any particular group plan?

A.—No, sir.

Q.—Did you have the general subject of group plans under discussion?

A.—Naturally the general subject was under discussion, of group plans. As I interpret it, the whole report was based on that; not on specific plans.

Q.—Would you kindly take the report, Doctor, as you have it before you, and let us look at paragraph 3 on the same page. Do you catch it down there—the second line from the bottom?

A.—Yes, sir.

ORGANIZATION SECTION

JOUR. A. M. A.
FEB. 22, 1941

Q.—Take the second—well, I will read it so that you will understand my question (reading):
 "Encouragement should be given to the trial of new methods of practice designed to meet these needs, and a careful evaluation of their success should be the duty of the medical profession before they are offered for general adoption."

What did you mean in there, that the "evaluation of their success should be the duty of the medical profession"?
 A.—As I stated, in paragraph 2, preceding it, sir, the College believes it is the duty of the medical profession to take control of all measures and that the plans that were drawn up or that would be drawn up should be acceptable to the medical profession.

Q.—And it was the medical profession which constituted those people in the community who were capable of evaluating the success of these plans?
 Mr. Lewin:—We object, if your Honor please, on the ground that the question goes beyond the scope of the direct examination.

THE COURT:—Can you repeat it, Mr. Leahy?
 Mr. Leahy:—I can repeat it, yes, your Honor. I will reframe the question.

By Mr. Leahy:

Q.—Was it the thought contained in this paragraph that the medical profession was the profession, and the doctors were the people, who could evaluate the success of such plans?
 Mr. Lewin:—Another objection, your Honor. The paragraph speaks for itself without ambiguity.

Mr. Leahy:—We had the same point up on direct and the question was asked as to what was the intent.
 THE COURT:—Objection overruled.

The Witness:—That means I may answer it?
 THE COURT:—Yes; you may answer it.

A.—It was felt that the medical profession were the arbiters as to the success of these plans.

By Mr. Leahy:

Q.—The next sentence reads that this new method of practice must be conducted strictly in accordance with the accepted code of ethics of the medical profession. What code of ethics is referred to there?

A.—The code of ethics that is accepted by the medical profession in places where these plans are in force.

Q.—Is there, Doctor, any code of ethics which is published for the medical profession other than the code of ethics of the American Medical Association?

A.—I made my reply as I did, sir, inasmuch as I have referred to the fact that our organization is an international one, and in the United States of America the code of ethics and the principles of ethics of the medical profession evolved by the American Medical Association I would say were generally accepted.

Q.—The sentence further proceeds to state that these methods must be conducted strictly in accordance with those ethics, in order that the interests of the patient and of the community may be protected. What do you mean by that?

Mr. Lewin:—I think it speaks for itself.
 THE COURT:—I do, too, Mr. Lewin. I think the whole article speaks pretty well for itself; but you have set the pace here.

Mr. Lewin:—No, your Honor. Where there was ambiguity we asked him to clear up the ambiguity. I thought that was perfectly proper practice. But here he is referring to something as to which there can be no argument about its meaning.

Mr. Leahy:—I did not see any ambiguity about it.
 Mr. Lewin:—You should have objected, then.

Mr. Leahy:—I do not want to object to anything you want to bring out.

Mr. Lewin:—Let us see if you stick to that throughout this case.

THE COURT:—I am afraid, gentlemen, that I shall have to be the judge of that. You may answer the question. After all, we have some understanding of the English language. I mean, it does not take a doctor or lawyer to have a reasonable understanding of the English language; and when you read perfectly plain, simple words laid down in a grammatical way, we ought to be able to judge what it means.

Mr. Leahy:—I will reframe the question, your Honor, to bring out the thought.

By Mr. Leahy:

Q.—Was it not the intent of that sentence, Doctor, that any method of practice which was being conducted contrary to the

code of ethics of the medical profession would not be conducted in the interests of the patient and of the community?

Mr. Lewin:—We make the same objection, your Honor.

THE COURT:—I have already permitted him to answer it. It is difficult to draw a line. When you conduct a line of examination it is pretty hard to restrict the cross examination.

Mr. Lewin:—Yes, your Honor, but—

THE COURT:—We will not argue it any further.
 The Witness:—I would prefer answering that in the positive; that is, that if conducted in accordance with the accepted code of ethics of the profession, it was felt that that would safeguard the interests of the patient and the community.

By Mr. Leahy:

Q.—Now, will you go to Section 4? You refer there to the fact that adequate medical service should be made for the uneducated and credulous members of the community. To whom were you referring when you said the credulous members, and what does that mean?

Mr. Lewin:—We object to that, on the same ground, that "credulous" is a perfectly good English word.

THE COURT:—Objection overruled.
 A.—I don't believe I can elucidate that any more than the word itself.

By Mr. Leahy:

Q.—Does it refer to those members of the community who might be easily misled by advertising claims for service which will be rendered to them?

A.—I think those are included under that phrase.

Q.—Those who easily believe representations as to what they will get for what they will pay?

A.—Exactly.

Q.—Does it not take into consideration also the fact that the ordinary layman or member of the public is himself unable to judge of the character or quality of medical service which he will get from an advertiser or solicitor?

Mr. Lewin:—There is nothing on the direct that went into that, and this witness has not been qualified as an expert on psychology or anything of that sort.

THE COURT:—Objection overruled. Answer the question, Doctor.

A.—I would not say that the public as a whole were not competent to choose their own medical care.

By Mr. Leahy:

Q.—Would you say that there were a sufficient number of the public such that you would classify them as the uneducated and credulous who must be protected against such representations?

A.—There is that element in the community; otherwise it would not have been referred to.

Q.—Do you recall that your group or your board studied that matter before this report was made up?

A.—It was known to the members of the board that in some of the industrial communities the type of people were of such a level that they had difficulty in using judgment as to the selection of those who should care for them from a medical standpoint.

Q.—Do you refer to the same people in the sixth paragraph where again you repeat that the College should work in cooperation with other medical groups in order to dispel the ignorance and credulity of the public?

A.—Yes, sir.

Q.—When you state in paragraph 7 of the report that your College recognizes that the periodic prepayment plan provided for the costs of medical care of illness and injury to individuals in families of small means offers a reasonable expectation of providing them with more effective methods of securing adequate medical service, you refer, do you not, to such a periodic prepayment plan as being conducted in accordance with the accepted code of ethics of the medical profession?

A.—Yes, sir.

Q.—Now, will you turn to page 2. Do you recall what your committee had in mind in making the statement in this report—

"The varying restrictions imposed by present insurance laws in different states further complicate the problem."

That is the last sentence of the first paragraph.
 A.—I cannot state with authority as to that phrase, but the insurance laws of the states differ, I am informed, and arrangements for prepayment plans that are made must conform to the laws of the states in which they are promulgated.

Q.—But you do not recall now any particular insurance laws that were discussed in the committee?

A.—No, sir.

Q.—Pass on, then, to subparagraph B on page 2:

A.—In the interest of the patient the organization of plans for the periodic payment of medical and hospital costs must be under the control of the medical profession."

What does that intend?

A.—It intended to obviate the prepayment plans being put under the guidance of commercial organizations.

Q.—You mean, commercial organizations of laymen?

A.—Yes, sir.

Q.—In other words, was it the intent of the recommendation of your board when it made its report to the Academy that the medical profession should be the profession which controlled these plans?

A.—Yes, sir.

Q.—Going down to the last sentence of paragraph C, what did your committee intend by writing into that paragraph:

"It is further intended that only approved hospitals be admitted to participation in such a plan?"

A.—It was intentionally written as "approved hospitals" without stating what the approving body would be. We are an international organization.

Q.—By the way: what countries are included? Let us get that clear, please.

A.—It was founded by the surgeons of the United States and Canada, but there are also Fellows in many other different parts of the world—in Mexico, in many of the South American countries, Cuba, Puerto Rico, England, Scotland, Wales; others in India, China, and so on.

Q.—Therefore, what you intended was to leave whatever approving board or organization there might be in each of the various countries to give its approval?

A.—Yes, sir.

Q.—Coming down to the United States, what were the approved hospitals, or what was the body which approved in the United States?

A.—It is not stated, sir.

Q.—What did you intend?

A.—It was intentionally, I would say, left vague. It was not desired to make the American College of Surgeons itself—not intended to place that College in the position of being the sole approving body.

Q.—Was there any other approving body at the time, in 1933 or 1934, when you made this report?

A.—Yes; the American Medical Association.

Q.—Was there any other association, other than the American Medical Association, besides your own which approved hospitals?

A.—Not to my knowledge. The American Hospital Association is an organization of itself, but I believe membership in it is on a different basis from that of either the American Medical Association or the American College of Surgeons.

Q.—Doctor, would it then be correct to state that in so far as that particular sentence affected hospitals of the United States when it used the adjective "approved" it meant only hospitals approved either by your Academy or by the American Medical Association?

A.—I think that is the logical interpretation.

Q.—Let us pass to subparagraph B on the same page:

"The organization and operation of any plan of this type must be free from any features not in accordance with the code of ethics of the medical profession."

Did you there refer to the same code you had referred to earlier in your report, to wit, the code of ethics of the American Medical Association?

A.—Yes, sir.

Q.—Just one question on F:

"The medical organization participating in such a plan must assume the responsibility for the quality of service rendered."

What does that refer to, Doctor, when it says that the medical organizations must assume the responsibility for the quality of service rendered?

A.—My interpretation of that, sir—and this is a strictly personal interpretation—would be that it was assumed from what has gone before that there will be medical organizations which will organize these prepayment plans, and those medical organizations are responsible for seeing that the plans work in conformity with the ideals and assume responsibility for the quality of service rendered.

Q.—It was not intended in that recommendation that you made to the Academy to recommend that any lay group, lay

board of trustees or lay board of directors should assume the responsibility for the quality of service rendered, was it?

A.—I do not see that that was stated here anywhere.

Q.—Would such an inference, in your judgment, be contained in paragraph F?

A.—It would seem to me that that is obvious, sir.

Q.—In other words, it was the medical profession which should take charge of the quality of service; is that right?

A.—As I see it, sir.

Q.—O. K. Now, let us go to page 3 of the second column, paragraph C.

"The sale of a contract by an industrial organization to an individual physician or group of physicians for medical and/or hospital service for its employees encourages commercial competition and is to be condemned."

What does it mean by selling contracts by an industrial organization to an individual physician, Doctor?

A.—That is where they are engaging in industrial practice under their contract to provide complete medical and hospital care.

Q.—By an individual physician?

A.—Yes.

Q.—What does it mean where it says "encourages commercial competition"?

A.—One doctor might underbid another in order to get the contract for the care of those in the industry.

Q.—You consider that any such practice as that is not in accordance with the public interest, do you not, Doctor?

A.—It says here that the board considered it something to be condemned.

Q.—Take paragraph D:

"Unethical practices in publicity, advertising, solicitation, and competition, either of a professional or of a financial nature, must be eliminated."

What practices were you referring to there? Did you have some in mind in the board as you sat around and drafted that paragraph?

A.—Only those referred to. It seems to me that is obvious, sir—unethical practices, unethical advertising, unethical solicitation, unethical competition.

Q.—Either of a professional or of a financial nature?

A.—Yes.

Q.—Do you recall now, or have you any independent recollection of, Doctor, any discussions which were had in the board before that paragraph was drafted?

A.—I have no recollection of any details of it, sir. You will gather from a reading of the whole document that the board had permanently in mind observing the ethics of the medical profession; and this is just one other phase of it.

Q.—And that is why you wanted that paragraph E, is it?—

"The accepted code of ethics of the medical profession, which is designed to protect the best interests of the patient, should apply to industrial medical service as to all other forms of medical practice."

A.—Yes, sir.

Q.—The same code of ethics you had in mind before?

A.—Yes.

Q.—Doctor, could you tell us how much care was spent by your board in the preparation of this report to the Board of Regents?

A.—As stated here, the board was appointed in July, 1933, and rendered its report in June, 1934.

Q.—For practically a year, then, you had the matters and things about which you reported under discussion and deliberation?

A.—Yes, sir.

Q.—And were the doctors who composed the board, Robert B. Greenough, yourself, Dr. Agnew of Toronto, Dr. Dukes of Oakland, Dr. Martin of Chicago, Dr. Miller of New Orleans, Dr. Pool of New York, Dr. Shipley of Baltimore, Dr. Squier of New York and Dr. White of Minneapolis—were they surgeons of long experience and standing?

THE COURT:—He has already answered that. He gave a list of four of them who were not. It is in the record. He himself is not a surgeon.

Mr. Levin:—He is a pathologist.

By Mr. Leahy:

Q.—Were they doctors of standing, then, and of long experience?

A.—They are doctors; yes.

Q.—By the way: Are the members of the college to which you belong also members of the American Medical Association?

A.—The American College of Surgeons. Not all, sir. It is an international organization.

Q.—Those in the United States are members of the American Medical Association also, are they?

A.—There may be a few exceptions to that, sir.

Q.—But the majority are, are they?

A.—Yes.

Q.—Now, Doctor, on direct examination you spoke about the approval of hospitals, I think. Your organization does inspect and approve hospitals, does it not?

A.—Yes.

Q.—How long has it been doing that?

A.—Since 1918.

Q.—What is the purpose of the inspection?

A.—To elevate the general standard of the practice of surgery, to improve care for the patients, to improve the conditions in the hospital where the doctors have to do the work, so that they may be in position to render medical care to the patients.

Q.—How frequently does the organization inspect hospitals?

A.—It is a continuous process, sir. There is no stated interval in which an individual hospital will be inspected.

Q.—In other words, does the hospital know in advance that it is going to be inspected?

A.—Yes, sir.

Q.—But the time depends on the convenience or the opportunity which your particular inspectors may have to make the examination?

A.—Yes, sir.

Q.—Would you say it is as frequently as a year or two years or three years, or how long?

A.—Certainly not all hospitals are visited every year. There is some communication with all hospitals each year. There are hospitals which not only conform to our standards, but their practice is far above our minimum standards, and it is not necessary to visit them at frequent intervals. It is the hospitals that need the help, or that we feel need the help, of the college that are visited at most frequent intervals.

Q.—Could you tell the jury about how many hospitals there are in the United States?

Mr. Lewin:—Your Honor, may I say something?

THE COURT:—Yes.

Mr. Lewin:—Intrinsically we have no objection to this, but it violates the rules of cross examination. Mr. Leahy is going to have an opportunity to present his case and call this witness as his witness. This has all been put into the record.

THE COURT:—I will sustain the objection to that question. Am I in error in my recollection that on direct examination you went into the fact that they approved hospitals?

Mr. Kelleher:—That is correct, your Honor.

Mr. Leahy:—I think I have a right to exhaust it, then.

Mr. Kelleher:—We went into the question of approval, but he has asked this witness how many hospitals there are in the United States.

Mr. Leahy:—I was just trying to follow the question, when he said they obviously could not examine every hospital every year.

Mr. Lewin:—It is not very important, but we could go on forever if we followed that practice.

I will withdraw my objection. Go ahead. I am awfully sorry.

Mr. Leahy:—Shall I proceed, or does your Honor—

THE COURT:—I have sustained the objection.

By Mr. Leahy:

Q.—In the approval of hospitals, Doctor, by your organization, is there any grading made of the hospital or classification made, such as an A hospital or B hospital?

A.—Not so designated, sir. The hospital is either approved or professionally approved. Professional approval means that in some respect they did not quite come up to our standards but they have given evidence that they are seeking to do so.

Q.—Then do you publish a report on those approved hospitals?

A.—We publish a list each year, sir.

Q.—I will show you a volume and just ask you whether you can identify that as one of your lists?

A.—It is.

Q.—Is that indicative of the lists that are published each year?

A.—Similar lists are published each year; yes, sir.

Mr. Leahy:—May that be marked for identification?

THE COURT:—Yes.

(List of hospitals identified by the witness was marked Defendants' Exhibit Crowell, Cross Examination, No. 1, for identification.)

By Mr. Leahy:

Q.—Doctor, with reference to your membership, is your membership scattered pretty widely throughout the United States?

A.—Yes.

Q.—Is each locality or area in the country represented? Does your membership go to the Far West, Middle West, South, East, and North?

A.—All parts.

Q.—I noticed you answered a question this morning on direct as to the qualifications of a Fellow in your college. Did you state that the minimum requirement is to admit a member after seven years?

A.—Seven years after graduation.

Q.—Do you admit on application where an applicant has been practicing for seven years since his graduation?

A.—If he has the other qualifications.

Q.—Then there must be additional qualifications, must there not, to the time of practice?

A.—Decidedly.

Q.—And you make a very close investigation into the man, do you not?

A.—Yes.

Q.—Into his qualifications?

A.—Yes, sir. By me, you mean the organization?

Q.—I mean the organization. Does the applicant usually submit references or sponsors when he makes his application?

A.—He does.

Q.—Are those contacted?

A.—They are communicated with.

Q.—And you try to find out as much as you can, do you not, to see that the man is qualified beyond the number of years he has practiced since his graduation?

A.—Yes.

Q.—Do moral qualifications enter into it?

A.—Ethical.

Q.—Ethical qualifications enter into it?

A.—Yes.

Q.—You were asked the question, I think, upon direct this morning, Doctor, whether or not you had any requirement that the members on the staff of the hospitals which your organization approves should be members of your organization. Do you recall that question?

A.—Yes.

Q.—Of course you have no such requirement, have you?

A.—No, sir.

Q.—Because you are an international organization, are you not?

A.—Yes.

Q.—And it is restricted purely to surgeons, is it not?

A.—Fellowship in the College?

Q.—Yes.

A.—Yes, sir.

Q.—And upon the staff of any hospital there are others than surgeons, of course, are there not?

A.—Yes.

Q.—Therefore you could not require, could you, under the rules of your organization, that the staffs of hospitals be composed only of surgeons?

A.—No, sir.

Q.—Do you have any requirement at all that the surgeons on the staff should be members of the county associations here in the United States?

A.—Not so stated, sir.

Q.—How would you put it? You put it for me.

A.—They should be practitioners of medicine, licensed to practice medicine in their respective communities, in good standing.

Q.—Do you recommend that the members of your association or that the staffs of surgeons in the hospitals be composed of members of your Society or College?

A.—Will you restate that, please?

Q.—I say, do you attempt to recommend to the various hospitals that in the selection of surgeons to the staffs of those hospitals they select from the accepted membership or Fellowship of your College? I mean, in the United States.

A.—I would say no. The College at no time, that I know of, has recommended directly the personnel of any hospital. We expect the hospitals to conform to our standards. We do not dictate personnel.

Q.—Where you find a surgeon on the staff of a hospital who is not a Fellow of the College, with respect to him what are your minimum standards?

A.—We deal with the hospital as a whole rather than with the individual members of its staff, sir.

Q.—In the approval of various hospitals do you take into consideration the personnel of the staff at all? .
A.—The accomplishment of the hospital as a whole.
Q.—Do you consider the staff members at all?
A.—We do have a list of the staff members.
Q.—Do you make any investigation of them as to their ability or their qualifications before you approve a hospital?
A.—I would say, rarely.
Q.—You accept them, do you, as they are on the staff?
A.—I am afraid I am getting a little deeper into this than I am qualified to answer.
Q.—Then I will not ask you any further questions.
A.—I am not directly in the hospital department of the College.

RE-DIRECT EXAMINATION

By Mr. Kelleher:

Q.—In your knowledge has any surgeon been excluded or expelled from membership in the American College of Surgeons for participation in a prepayment plan?
A.—Not to my knowledge.
Q.—Has the American College of Surgeons ever threatened to withdraw its approval of a hospital because the members of the staff of the hospital were engaged in a prepayment plan, to your knowledge?
A.—Not to my knowledge.
Q.—Has the American College of Surgeons ever withdrawn approval of a hospital because of the participation of the staff of the hospital in a prepayment plan?
A.—Not to my knowledge.

RE-CROSS EXAMINATION

By Mr. Leahy:

Q.—You would, however, would you not, threaten to withdraw the approval if there were members on the staff of the hospital engaged in unethical practices?
A.—If it came to our knowledge.
Mr. Leahy:—Yes. That is all.
Mr. Kelleher:—We now offer in evidence certain excerpts from "Proceedings of the House of Delegates of the American Medical Association, June 11th to 15th, 1934." The volume containing the proceedings falls within Exhibit 2, which is the stipulation.

THE COURT:—Do you wish to read it?

Mr. Kelleher:—I have indicated the parts which we intend to offer by slips and by pencil notations in the volume. I suppose I had better show it to defendants' counsel.

Mr. Kelleher:—May I state for the record that the Government is offering in evidence portions of the proceedings of the House of Delegates, in 1934, appearing on pages 42, under the heading, "Resolution on the Apparent Attempt of the Board of Regents of the American College of Surgeons to Dominate and Control Medical Practice," and the portion of the proceedings appearing on page 49, under the heading, "Report of the Judicial Council"?

THE COURT:—That is the one I passed on?

Mr. Kelleher:—That is the one you passed on, yes.

Dr. George Edward Follansbee presented the following report:

"A resolution introduced by Drs. Charles J. Whalen, Illinois, calls attention to a recent action by the Medical Service Board of the American College of Surgeons, approved by its board of regents, advocating publicizing a procedure for furnishing medical and hospital care for certain classes of the population. No consideration appears to have been given to policies or procedure previously adopted by the American Medical Association, of which the College of Surgeons are members. The American Medical Association is the one organization representing the entire body of physicians constituting the medical profession, and by virtue of that fact is the only organization qualified to speak for the varying interests and policies of the profession as a whole.

"Recurring proposals concerning the entire practice of medicine from small sections of the profession, without due regard to the policies of the entire profession, as represented by the American Medical Association, when presented to the public through other channels than the representative body are confusing to the public mind, are harmful to the profession, and give aid and assistance to those bodies and individuals who are attempting to revolutionize medical practice. The Judicial Council therefore recommends the adoption of the resolution as follows:

"WHEREAS, The American Medical Association, including 100,000 members, is the only democratic body representing the organized profession of this country through delegates regularly elected through county and state medical societies; and

"WHEREAS, Other medical organizations and groups representing selected groups of specialists who have from time to time issued pronouncements of policies in the field of medical economies and medical practice, which do not represent the views of organized medicine and which purport to guide the medical profession and the public in the administration of medical affairs; and

"WHEREAS, The House of Delegates of the American Medical Association has repeatedly condemned the issuing of said announcements on poli-

cies which seriously embarrass the attempts of this organization to secure adequate care for the health of the American people and to protect the ideals of the medical profession; and

"WHEREAS, The Board of Regents of the American College of Surgeons assembled in Chicago on June 10 promulgated a policy, including a prepayment plan for medical care, restricting so-called private hospitals to the members of the staffs of such hospitals, and to physicians acceptable to such staffs; and

WHEREAS, This action of the Board of Regents has been spread to the people of the United States through the public press on the opening day of the annual session of this House of Delegates: Now, Therefore, Be it

Resolved, That the House of Delegates of the American Medical Association expresses its condemnation of such practice and of this apparent attempt by the Board of Regents of the College of Surgeons to dominate and control the nature of medical care and practice; and be it further resolved that the House of Delegates requests the board of trustees of the American Medical Association and the judicial council to ask the Board of Regents of the American College of Surgeons, who are themselves members of this American Medical Association, to explain the reason for their action and to justify the attempt of a small group within a specialistic organization to legislate for all the medical profession in this country, truly represented only by the American Medical Association."

"The report of the Judicial Council was adopted on motion of Dr. C. E. Humiston, Illinois, seconded by Dr. Albert Soland, Section on Radiology, and carried unanimously."

TESTIMONY OF RAYMOND R. ZIMMERMAN

DIRECT EXAMINATION

Raymond R. Zimmerman said in answer to questions that he is employed by the Council of Personnel Administration here in Washington.

The Council is a division of the United States Civil Service Commission. It is made up of the directors of personnel of the various departments and agencies of the Federal Government. It concerns itself with the personnel problems; the human problems of the Government. He has been with the Council since August 1939. During 1936, 1937 and 1938 he was director of personnel of the Federal Home Loan Bank Board, connected with the Home Owners Loan Corporation, as director of personnel of the Federal Loan Bank Board.

The personnel department concerns itself with problems, questions of employments, wages, promotion; questions of training, questions of policy, questions of employment policy; labor policy, questions of working conditions, questions of employee health—the human problems of the organization. Before that he was in charge of personnel matters for the Continental Oil Company in Oklahoma.

He obtained his present post with the Government in the Council on Personnel Administration through appointment by the Chairman of the Council, which is under the Civil Service Commission. He described his training and qualifications in such work.

THE H.O.L.C.

Q.—I wonder if you could tell us now just generally what the Home Owners Loan Corporation is.

A.—Well, the Home Owners Loan Corporation is an independent instrumentality of the Federal Government. It was created by Act of Congress in 1933. And it was organized—it was set up, created, for the purpose of refinancing distressed home loans.

Q.—How was it financed?

A.—The initial stock contribution I think was supplied by the Federal Reserve—no, by the R. F. C., Reconstruction Finance Corporation.

Q.—Reconstruction Finance Corporation?

A.—That's right. The original capital was \$200,000,000. That was the initial capital.

Q.—And did it raise additional monies by the issuance of bonds?

A.—Oh, yes.

THE COURT:—I don't think you need to go into any detail on that.

Mr. Levin:—Not much more than that. A little bit more.

THE COURT:—Very well.

Mr. Levin:—Your Honor, I think everybody might be interested to know who held the bonds. I think the other side might want to make some point of that, I don't know.

By Mr. Levin:

Q.—Do you know who bought the bonds of the H. O. L. C.?

A.—The bonds were sold to the public.

Q.—Now, just describe briefly again the nature of the business of the H. O. L. C. What does it do?

A.—It was engaged, as I say, in refinancing distressed home loans.

Q.—Does it lend money and acquire mortgages?

A.—Yes.

Q.—Charge interest on those loans?

A.—That's right. That's right. The revenues of the Home Owners Loan Corporation come from the interest charged on these mortgages, these home mortgages.

Q.—Is it self-sustaining financially? Does it earn its expense money?

A.—Yes. Entirely.

Q.—Entirely?

A.—In other words, it is not supported by taxation; no funds appropriated.

Q.—In 1937 and 1938 were its expenses taken out of money appropriated by Congress or taken out of its earnings?

A.—Taken out of earnings entirely.

Q.—I see. Can you tell us whether or not through 1937 and the early part of 1938 it was under the jurisdiction of the Comptroller General or the General Accounting Office as to its expenditures?

A.—I think it went under the—

Mr. Leahy:—Isn't that a question of law, if your Honor please?

THE COURT:—Of course it is.

Mr. Lewin:—It is a question of fact also.

THE COURT:—He might state it but let us not go into it.

Mr. Leahy:—May I just state this, if your Honor please, if it is or if it isn't, whatever it is, it is under some law, and that law is the best evidence.

THE COURT:—If you are serious about the objection, I will sustain it.

Mr. Lewin:—All right.

By Mr. Lewin:

Q.—About how many employees did the Home Owners Loan Corporation have in 1937?

A.—Well, it varied during the year.

Mr. Leahy:—All over the United States, you mean, Mr. Lewin?

Mr. Lewin:—That is what I asked first but I am going to come down to Washington in a moment.

By Mr. Lewin:

Q.—Do you know what the total number of its average employees was in 1937?

A.—It was between 15,000 and 16,000, in that neighborhood. It varied from month to month. Home Owners Loan Corporation is a liquidating organization. Its staff is decreasing.

Q.—Yes. About how many of those employees in 1937 were working here in Washington?

A.—About, between 1,300 and 1,400. There were more than that on the home office payroll but one division was located in regional offices, although it was carried on the payroll of the Washington office, the auditing department.

Q.—Now, have you ever interested yourself as a personnel man throughout the period of your experience in reducing the expenses of your employer which result from accidents to the employees?

A.—Yes. That was a responsible part of my work with the oil company. Its safety work is an important part of the job in a business that is hazardous.

Q.—Yes. Were the H. O. L. C. employees in 1937 and 1938 and 1936 subject to any Civil Service requirements?

Mr. Leahy:—Will you read that question?

(The pending question, as above recorded, was read by the reporter.)

By Mr. Lewin:

Q.—Or regulations?

Mr. Leahy:—Isn't that a question of law also, if your Honor please?

THE COURT:—Yes, sir, but maybe he can advise the Court about it. The Court doesn't know.

The Witness:—Am I to answer it?

By Mr. Lewin:

Q.—The Court is going to permit you to answer it, yes.

A.—Yes. Rules and regulations governing federal workers; hours of work; rates of pay; hours of leave; sick leave and annual leave; regulations of that sort, the employees of the Home Owners Loan Corporation were.

Q.—What is sick leave for a government worker or for a worker of the H. O. L. C.?

A.—Well, it is—it is a period of time is given with pay to the employee who actually—who is ill and cannot work, up to 15 days a year; and we speak of it as a sick leave.

Q.—About how much sick leave is a government worker entitled to?

Mr. Leahy:—He stated fifteen days.

THE COURT:—He stated it.

Mr. Lewin:—I didn't hear that.

The Witness:—Fifteen days is the maximum that they are entitled to in a year. However, that leave is cumulative.

By Mr. Lewin:

Q.—But of course he has to be sick, I presume, before he is entitled to the sick leave?

A.—That's right. And he must certify that he is sick.

Q.—Did you make any studies for a Federal Home Loan Bank Board of the losses to the business by reason of the amount of sick leave taken by the employees?

A.—Yes, sir. As a part of record keeping, regular record keeping, we kept track of the amount of time lost through sickness, and we interpreted those costs to the management of the organization.

Q.—Was that work done under your direction?

A.—It was.

Q.—Had you before that time studied the whole problem of the cost to an employer in business of the amount of sick leave that his employees take?

A.—Well, I was, and am generally familiar with the amount of sick leave that is taken by employees in private industry. Is that your question?

Q.—Yes. Are there studies of that question that have been prepared by employers?

A.—I think most private employers keep pretty accurate records of their costs.

Q.—Had you any access to the study made by the American College of Surgeons on that question?

A.—Yes. I read—didn't make a careful study of it, but I know that it made the observation that there was—

Mr. Leahy:—I object. The best evidence is the report.

THE COURT:—Objection sustained.

Mr. Lewin:—I just asked whether he was familiar with that study.

THE COURT:—I think he has answered the question.

By Mr. Lewin:

Q.—Were you familiar with the studies of Westinghouse on that subject?

A.—Yes, sir.

Q.—When was that study made, was it 1937?

A.—'36.

Q.—'36?

A.—It was over a period of years, but they released their figures in '36.

Q.—Did you at my request look at your records to ascertain the average number of H. O. L. C. employees working here in Washington through the three months period October, November, and December of 1936?

A.—Yes, I did. Some time ago.

Q.—Yes. Now, can you tell me what that average figure was?

A.—No, sir—

Mr. Leahy:—I object. The record is the best evidence.

Mr. Lewin:—Well, now, your Honor, this is a well-recognized exception. These records are extremely voluminous. I am perfectly willing to have my brother have full access and he can count the number of employees and make his own computation.

THE COURT:—If it is a matter that is not in printed form in the nature of some official report, I think it necessarily involves calculations, summations, and I think the witness, if he has himself engaged in that, can state it, can state the results he has found, from authentic records.

Mr. Leahy:—Would your Honor kindly ask if he has done that personally?

THE COURT:—I think he said he had, Mr. Leahy.

By Mr. Leahy:

Q.—Did you do this personally, Mr. Zimmerman, make this investigation and the study of the records, or did somebody else do it and report to you?

A.—I didn't post the leave cards.

Q.—Did you examine the leave cards and make this compilation in order to talk about it now, yourself, or did you have somebody else do it and report to you?

A.—It was done under my supervision. The leave clerks posted the records and made summarization of it for me.

Q.—Then you are taking somebody else's summarization?

A.—Yes. Regular monthly reports.

Mr. Lewin:—He said he had this study made under his direction; which is very usual to have his clerks do it. He couldn't do it all himself.

Mr. Leahy:—If your Honor please, it all depends on how we use this word "supervision." It is a great big question.

It is one thing to say in a section "I want this thing done," and it is another thing to supervise the doing of it to see how it is done.

As I understand it, he has nothing to do with it excepting he told the clerk or two clerks to go ahead and make the compilation; if the two clerks made the examination they ought to be here to tell us about it. I object to the testimony from this witness.

By Mr. Lewin:

Q.—Were these records taken from records kept under your supervision?

A.—Yes, sir.

Q.—Did you designate the employees who were actually to make the postings?

A.—Yes, sir.

Q.—Did you tell them what they should do and to what records they should look for the information?

A.—No. I think they knew that.

Q.—Did you tell them what period of time you wanted them to make the study of?

A.—Yes.

Mr. Lewin:—Your Honor, I submit there is no question but that is admissible.

Mr. Leahy:—I think he has just taken what he assumed some other clerks knew; he doesn't know what the records are, he just made a blanket assumption that they knew some records and brought back some things.

The Witness:—These records are audited.

THE COURT:—There seems to be a reasonable way to get at it. You have to accord the party the right of cross-examination and, if Mr. Zimmerman himself didn't do the work but is presented here as a witness to give the result, it denies the other side the right of cross-examination as to how the work was done and as to the accuracy of it.

That is the objection to it, as I see it.

Mr. Lewin:—It falls under a very well recognized exception of complicated voluminous records.

THE COURT:—Yes, with the results given by the ones who did the work.

You see, otherwise the defendants here don't have, for instance, the right, of course, which the law gives them of cross-examination to test the accuracy of that work.

Mr. Lewin:—Well, we are perfectly willing to have counsel go with us down to the H. O. L. C. to give us the books and let them sit down there and make these computations themselves.

THE COURT:—I will say this to counsel in order that it may be helpful in determining their final position about it, I am inclined to think that the information we want, properly presented here in evidence, is admissible, but the question is whether you want to go to these original sources for it, take the time for it.

Mr. Leahy:—I think your Honor indicated the positive rule of law on the question when you stated to counsel that when it was attempted in any case to prove records of this character, it was the one who made the compilation itself who was there on the stand, not someone else who received it.

I don't wish to be technical, it is the last thing in the world I want to do besides going down there and looking at the records. I am not going to do that. But, if your Honor please, I don't know what records were studied. He said "I assumed the clerks knew the records." I don't know how they were kept or anything about it and I would like to know that.

THE COURT:—I put this merely by way of suggestion, if counsel would rather step to the bench I will make my suggestion up here. Please step up here.

Mr. Lewin:—I will restate the question.

By Mr. Lewin:

Q.—Mr. Zimmerman, do you know the average number of the employees in Washington of the H. O. L. C. during the calendar months October, November, and December of 1936?

A.—Not from memory.

Q.—Could your memory be refreshed by showing you the memorandum that you made of it?

A.—Yes, sir.

Q.—Did you make this memorandum, or have it made? (indicating.)

A.—Yes, sir (examining paper).

Q.—Who physically made this compilation? I suppose the stenographer wrote it down, but who prepared it?

THE COURT:—He has already stated the actual work was done by certain clerks or subordinates that he designated for that work.

I think that is answered, Mr. Lewin.

Mr. Lewin:—My brother here had some further question about it.

Mr. Leahy:—It is only this, that it is rather difficult to refresh one's recollection when one never had the recollection to be refreshed.

THE COURT:—I understand this is the result of that examination that he directed.

By Mr. Lewin:

Q.—Refer to that paper and answer the question.

THE COURT:—You may offer the paper yourself if you wish. We will receive the paper if he identifies that as the correct figure.

The Witness:—The average number of employees in the home office in Washington the last three months of 1936 was 1,534. That is exclusive of 477 that were working in the field but on the Washington office.

By Mr. Lewin:

Q.—So that if you took this 400 and some, how many does that leave you as the average you had working in Washington?

A.—The total number on the payroll was 2,011, less 477, leaves a net of actual employees working in Washington of 1,534.

Q.—Now, can you give us similar testimony for the year 1937?

A.—It is here (examining paper); total number of the payroll for this three months, 1,768. Working in the field, 428. It left actually employed 1,340. 1,340. 1,534.

Q.—Mr. Zimmerman, can you give us the average for the 12 months, 1937?

Mr. Leahy:—Is that for the whole year?

Mr. Lewin:—Yes.

The Witness:—Average for the year 1937 was 1,405, actually employed in the home office.

By Mr. Lewin:

Q.—Have you had studies made under your direction upon which you could make reports each month to the Federal Home Loan Bank Board as to the amount of sick leave that was being taken by the employees, and the amount that that sick leave cost the corporation in dollars and cents?

A.—That was a regular monthly report that went to the management.

Q.—I see. I hand you what purports to be such reports and ask you whether they are true copies of the reports that were submitted each month to the Federal Home Loan Bank Board.

A.—These are copies of the monthly report that went forward, summarizing the lost time from sickness.

Q.—Yes. Now, did you make studies to show what the losses were on the average in those last three months of 1936?

A.—We did.

Q.—Will you tell the jury what those losses were in dollars?

Mr. Leahy:—I object to that as being entirely immaterial and irrelevant, if your Honor please.

None of the issues in this case are broad enough to include testimony of that character.

Mr. Lewin:—Didn't you argue that to the jury?

Mr. Leahy:—I didn't argue it at all.

Mr. Lewin:—I beg your pardon. He argued to the jury that somebody had made a claim that the cost to the Home Owners Loan Corporation was \$500,000. Do you remember those words?

Mr. Leahy:—I was answering what you said, when, if, and as.

Mr. Lewin:—And I have answered what you said by evidence.

THE COURT:—What is there in the indictment that is connected with that?

Mr. Lewin:—I will give it to you (examining papers). The allegations of the indictment to support this very well are those connected with Group Health Association, and which describe that corporation and its functions and its business.

THE COURT:—Well, read the particular one that relates to this question if you can find it.

Mr. Lewin:—There is no allegation in the indictment that the average number of employees of the Home Owners Loan Corporation was any amount.

THE COURT:—I hardly see the relevancy of it. Of course there were certain motivations that actuated the organization of Group Health, but what they are is unimportant and we will take a lot of unnecessary time if we got into it.

For the purposes of this trial we take Group Health to be a legal organization with the right to function along these lines of the prepayment group plan.

Now, that is all we are interested in. I am not going to extend this trial into any unnecessary features. We might just as well go back 130 years and find out what actuated the birth of the American Medical Association. We aren't concerned with that now.

Don't you see?

Mr. Lewin:—Yes, your Honor. I just don't want to be in the position after that opening statement of Mr. Leahy's—

THE COURT:—But you cannot try this case on the opening statement of Mr. Leahy. If you are going to, I will have to direct a verdict now, don't you see?

Mr. Lewin:—No, I don't, your Honor.

THE COURT:—That is one thing I think we had better wait for now. We are trying the case on the indictment now. The burden is on the Government to prove the indictment and we are going to keep reasonably within the limitations of that indictment.

Mr. Kelleher:—Is it your Honor's position that in showing the organization of Group Health we should not go into the financing of that Group Health?

THE COURT:—We are going into it only so far as it is reasonably necessary relative to this case. I am not going into all the details of any organization any further than is necessary to keep it a pertinent question here.

This case opens up so many avenues of inquiry that there has to be a limitation.

Mr. Lewin:—Your Honor, we feel we have absolutely nothing to conceal.

THE COURT:—There is nothing to conceal, so far as the aspects of Group Health are concerned, which I have stated, and we are not entering into any conjectures or suspicions one way or the other about it. We are simply going to keep within reasonable limitations here.

This indictment is your chart.

Now, let us go along with it.

I will sustain that objection.

Mr. Lewin:—All right.

By Mr. Lewin:

Q.—Did you have occasion to consider how this financial expense, whatever it might be, might be reduced on behalf of your employer?

Mr. Leahy:—I object to the question as immaterial.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—Specifically, did you have occasion to consider an employee medical health plan?

A.—Yes, sir.

Q.—For the employees of the H. O. L. C. here in Washington?

A.—Yes, sir.

Q.—What study of such a subject did you make initially of yourself?

A.—Of Group Health practice?

Q.—Yes.

A.—Well, I first familiarized myself with—with the plan of the Standard Oil of Louisiana at Baton Rouge.

Dr. Adams, a medical director, described his plan to a group of us at the American Management Association in 1935. And it was there that I received first detailed information as to how the employees cooperative of this character could function in an organization.

He described to us that it was—

Mr. Leahy:—I object to what he described.

By Mr. Lewin:

Q.—Was he a doctor of medicine?

A.—He was.

Q.—What connection did he have with the Stanocola group you mentioned?

A.—He was the medical director of the Stanocola group plan.

Q.—Did the speech you heard him give deal with the subject of prepayment plans?

Mr. Leahy:—I object.

THE COURT:—Sustained.

By Mr. Lewin:

Q.—Did you have a conversation with Dr. Adams after you had heard his explanation?

A.—I did.

Q.—What was the subject matter of the conversation?

Mr. Leahy:—I object.

THE COURT:—Sustained.

By Mr. Lewin:

Q.—Why did you go up and have a talk with Dr. Adams after his speech?

Mr. Leahy:—I object, as being immaterial.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—Did you make a trip down to inspect the Stanocola plan?

A.—I did.

Q.—Did you do that before Group Health Association was formed?

A.—I did.

Q.—About when did you go?

A.—In January 1937.

Q.—And how much time did you spend down there?

A.—Two days.

Q.—And just what did you do?

A.—Well, I inspected their plan from stem to stern.

Q.—Stem to stern.

A.—Visited—I talked first with the medical officers, the staff, visited the clinic, observed it in operation, talked with some of the patients, talked with the management of the company, the vice-president and general manager.

Q.—Of the Standard Oil Company of Louisiana?

A.—That's right. Went out into the refinery and talked with some of the supervisors, trying to make up my mind whether they had a good thing or not. I was looking it over.

Q.—Did you seek advice from the doctors who were on the staff of the Stanocola?

A.—Yes. We told them that we had a similar problem.

Mr. Leahy:—I object.

Mr. Lewin:—What is your Honor's ruling on that?

THE COURT:—It has been answered. I wouldn't attempt to get the results of the conversation, because, necessarily, that is just hearsay. I assume that is the basis of Mr. Leahy's objection.

Mr. Leahy:—Yes, but I think his objection is premature. I asked whether he was getting advice from these doctors on the subject of the medical plans and prepayment groups.

By Mr. Lewin:

Q.—What is your answer to that?

THE COURT:—He said he was.

By Mr. Lewin:

Q.—Can you name some of the doctors you discussed it with down there at the Stanocola?

A.—Dr. Irwin was their medical director. There was a Dr. Morris.

Q.—Did you meet Dr. Boyzet?

A.—Yes. Dr. Boyzelle, I believe it was.

Q.—How fully did you discuss it with these doctors? Don't tell us what you said, but how fully did you go into it?

A.—The size of their organization; their costs; their services; their dues to members; took a look at their budget; took a look at the physical equipment of their clinic. We asked all the—

Mr. Leahy:—I object.

THE COURT:—Yes. Don't tell the conversation.

By Mr. Lewin:

Q.—Did you go into the results of its operations?

A.—Yes.

Q.—How long had it been operating when you saw it?

A.—Oh, I was there in 1937. It was started in 1921.

Q.—What conclusion did you arrive at as a result of your inspection as to its results?

Mr. Leahy:—I object, as immaterial, if your Honor please, what his conclusion was.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—Now, did you have occasion to meet a gentleman named Mr. R. V. Rickcord?

A.—Yes, sir.

Q.—When did you meet Mr. Rickcord and under what circumstances?

A.—It was in the early part of 1930, to my recollection.

Q.—Did he come to see you?

A.—He did.

Q.—Who was Mr. Rickcord?

A.—Mr. Rickcord was an employee of the Twentieth Century Fund?

Q.—Twentieth Century Fund. What is the Twentieth Century Fund?

A.—Or, the Good Will Fund. One of the two.

Q.—Are they affiliated, those two funds?

A.—Yes, they are. I understand they are.

Q.—What is the Twentieth Century Fund, and what is the Good Will Fund?

A.—The Twentieth Century Fund is a philanthropic institution, foundation. It was financed by the—by Mr. Filene, Boston merchant.

Q.—How is it governed?

A.—By a Board of Trustees.

Q.—Do you know the names of any of the members of the Board of Trustees as of that time?

A.—I remember their letterhead. The first one was Newton D. Baker and the last one on the list was Roscoe Pound.

Q.—And Roscoe Pound was many years the Dean of the Harvard Law School?

A.—Right.

Q.—Newton D. Baker, of course, was the Secretary of War. Were there other men of equal attainments on that board?

A.—Henry S. Denison is a name I recall. New England manufacturer. Henry Brewer, president of the Bowery Savings Bank. I don't remember the names of all of them, but I have the names of some of them. Morris Leeds of Philadelphia is one.

Q.—The present Attorney General of the United States?

A.—No, sir.

Q.—Was he later?

A.—I don't know.

Q.—Was the Solicitor General of the United States a member of that board?

A.—Not at that time.

Q.—Do these funds and foundations you have mentioned publish reports and studies from time to time?

A.—They do.

Q.—Were you at that time familiar with any of their studies?

A.—Not intimately at the time I first met Rickcord, no.

Q.—After meeting him, did you have occasion to familiarize yourself with any of the studies of those foundations?

A.—Yes. I received from him, a week or so later, a copy of a report that they published, called How to Budget Health.

Q.—Was that the report that you studied?

A.—It was a study that had been made by that organization.

Q.—What had been Mr. Rickcord's experience with such matters, if any, up to that time?

Mr. Leahy:—He could know that only by hearsay. I object, if your Honor please.

THE COURT:—The objection is sustained.

By Mr. Lewin:

Q.—Had Mr. Rickcord been in personnel work?

A.—He had.

Q.—With what companies?

A.—Brooklyn Edison.

Mr. Leahy:—We still have to object.

Mr. Lewin:—I suppose we all learn from hearing about these things. I don't know how anybody can—

Mr. Leahy:—We can only get testimony in court on what we know.

THE COURT:—I think the objection may be sustained.

By Mr. Lewin:

Q.—Did you and Mr. Rickcord have any discussions during the year 1936 after you met him?

A.—Yes, sir.

Q.—What things did you discuss?

A.—He came to my office to get some information on costs—health—sick leave costs. The first time I had met him, he was directed to come to us, I understand—

Mr. Leahy:—I object. I object.

THE COURT:—Put your next question.

By Mr. Lewin:

Q.—What was the subject matter of your discussions?

Mr. Leahy:—I object. Again, it is immaterial and hearsay.

Mr. Lewin:—This man participated in those discussions.

THE COURT:—Even so, I do not see the relevancy or the materiality of it. The objection is sustained.

Mr. Lewin:—Your Honor, I wonder if you recall these charges of godfather and godmother.

Mr. Leahy:—He is still on that talk, your Honor.

Mr. Lewin:—You are going to hear a lot about that talk before I am through with this case.

THE COURT:—I have the indictment before me. I am going to hold you as close as I can to that. I do not see anything in the indictment about this.

Mr. Kelleher:—The indictment alleges it was organized, and these are the circumstances leading up to the organization.

THE COURT:—I have ruled that the motives which brought about this organization are not relevant. If you wanted to go off into by-ways, it might be argued as appropriate, but I think it is too remote.

Mr. Lewin:—I should like to show, your Honor, that this was carefully worked out; that it was not a half-baked plan for medical advice, and all the rest of it. I haven't a thing to hide, and I should like the jury to know it.

THE COURT:—I do not imagine the jury is suspecting you of hiding anything.

Mr. Lewin:—What other basis could there be for that opening statement?

Mr. Leahy:—You must be frightened to death.

Mr. Lewin:—I am not frightened; I am shocked by it.

Mr. Leahy:—I am glad it has some effect.

Mr. Lewin:—If there is going to be anything exposed in this case, it is going to be that opening statement, from stem to stern.

THE COURT:—Let us get along. Let us not try Mr. Leahy just now. Let us get along.

I see on my copy of the indictment, on page 14 of the defendant's copy, that group health has a certain description here, and I think we ought to stick reasonably within the limits of that description.

By Mr. Lewin:

Q.—As a result of those talks with Mr. Rickcord and of your trip to Stanocola and of your reading these studies on the subject of prepayment plans, what did you do in the fall of 1936?

A.—I had some conversations with officers of the Home Owners Loan Corporation.

Q.—About how many such meetings did you have?

A.—Oh, there must have been four or five—six.

Q.—What did you discuss with them?

Mr. Leahy:—I object.

THE COURT:—The objection is sustained.

By Mr. Lewin:

Q.—Did Mr. Rickcord attend these meetings?

A.—Some of them—all of them, I guess. Yes, all of them.

Q.—Did he make any suggestions as to what you gentlemen might do?

Mr. Leahy:—I object.

THE COURT:—The objection is sustained.

By Mr. Lewin:

Q.—As a result of these conferences with the officers of the Home Owners Loan Corporation, what, if anything, did you determine to do?

A.—We determined to organize a group health plan—cooperative.

Q.—Who is Mr. John Fahey?

A.—Chairman of the board.

Q.—Chairman of the board of the Federal Home Loan Bank?

A.—Yes.

Q.—Up to this time had you approached Mr. Fahey on this subject at all?

A.—I had not.

Q.—Did you make any approaches to him after you had these discussions among the subordinate executives?

A.—Not until we presented the matter to the board and pointed out that some initial financial system—

Mr. Leahy:—I object.

THE COURT:—Yes. I would not go into that.

By Mr. Lewin:

Q.—Who is Mr. Luke Keeley?

A.—He was president of the Employees Credit Union.

Q.—Was he an employee of the H. O. L. C.?

A.—He was.

Q.—What is a credit union?

A.—A credit union is an employees' bank, a financial institution that is chartered and supervised by the District of Columbia or the Federal Government.

Q.—It is a small loan bank?

A.—An institution into which employees may deposit their savings, and loans are made to members of the credit union.

Q.—Do you know what the extent of such loans is?

Mr. Leahy:—I object; it is immaterial.

THE COURT:—The objection is sustained.

By Mr. Lewin:

Q.—Did Mr. Luke Keeley come into these discussions?

A.—He was present in one of the meetings.

Q.—Did the Credit Union take any position with regard to the subject matter of the discussion?

A.—The executive committee voted that—

Mr. Leahy:—I object; the best-evidence rule.

By Mr. Lewin:

Q.—Were you a member of the Credit Union?

A.—I was.

Q.—Will you tell us what position the credit union took?

Mr. Leahy:—I object; the best-evidence rule; also, it is immaterial.

Mr. Lewin:—This seems to be a little different from that protestation Mr. Leahy made a little while ago.

THE COURT:—I will sustain the objection. I think it all trespasses upon the general nature of my ruling, Mr. Lewin.

Mr. Lewin:—I thought not. I thought I was observing your Honor's ruling.

THE COURT:—I think it is all very much of the same order. After all, it is not all these preliminary elements that finally went into the formation of Group Health, for the reasons I have indicated.

By Mr. Lewin:

Q.—Did you participate with Mr. Keeley in the formation of a report to the Home Owners Loan Association bank board on the studies that you had been discussing?

A.—Yes, sir, we drafted a letter.

Q.—Is this the letter, dated Sept. 22, 1936 (handing a paper to the witness)?

A.—It is.

THE COURT:—Whom is that to, please?

Mr. Lewin:—This was to the members of the board—the Federal Home Loan Bank Board—and it is signed by the Washington H. O. L. C. Federal Credit Union, by Luke E. Keeley, President.

I ask that it be marked for identification.

(Letter of Sept. 22, 1936, from Washington H. O. L. C. Federal Credit Union, by Luke E. Keeley, President, to Federal Home Loan Bank Board, was marked as U. S. Exhibit 9 for identification.)

(Mr. Lewin handed U. S. Exhibit 9 for identification to counsel for the defense.)

Mr. Leahy:—I pass this to the Clerk and ask that he in turn pass it to your Honor.

THE COURT:—(After examining paper) What about it?

Mr. Leahy:—We object, if your Honor please, because it is right within your Honor's ruling.

THE COURT:—I sustain the objection.

By Mr. Lewin:

Q.—Did you approach the Bank Board itself with any recommendations for the establishment of a prepaid clinic among the employees?

Mr. Leahy:—Can't we get down to it? I do not like always to be put in the position of objecting. Your Honor has indicated the line. This puts me in a bad light.

Mr. Lewin:—I do not think it puts you in a bad light. I think you have put yourself into a bad light.

Mr. Leahy:—I don't care much what you think.

Mr. Lewin:—I should like to show, your Honor, that this was an employee plan.

Mr. Leahy:—We agree to that. Let us admit. It was an employee plan, a group plan of the employees, if that is what you want us to admit. Then we can get on.

Mr. Lewin:—I don't want you to admit it unless it is true, but I happen to be able to prove it.

THE COURT:—If it is admitted, you do not need to prove it.

By Mr. Lewin:

Q.—What was the attitude of the Home Loan Bank Board toward the plan?

THE COURT:—Are you objecting or not?

Mr. Leahy:—Yes, your Honor, I am objecting.

THE COURT:—I sustain the objection. I do not like to have to insist, Mr. Lewin, upon my rulings being respected, but it does seem to me that all this falls under the same ruling that I have made. Of course, I might be ruling on individual questions of a general nature—

Mr. Lewin:—I think perhaps my trouble is that I do not understand it. I have now got a concession from the opposing side with which I am content, on one issue.

THE COURT:—I just want you to understand the background of my ruling. There is an allegation here on page 14 of the transcript of the indictment which describes Group Health. The general nature of that organization is appropriate undoubtedly as it is described here. The question as to the motives which actuated the organization of Group Health is unimportant. Group Health is not a part of this suit.

Mr. Lewin:—That is true.

THE COURT:—I will repeat what I have already said: that the propriety of organizing it and the legality of it are not in issue here in this case. If that is so, why make it an issue? Don't you see? All these questions go into things that deal with the actuating motives for the organization of it, the propriety of its being organized. I do not think they are relevant.

I have some responsibility to keep this case within reasonable limits. I think these questions would open up a very broad avenue of inquiry, which I should like to have omitted, if it can possibly be done.

Mr. Lewin:—I wonder if your Honor would elaborate upon your ruling and inform us whether this grant of \$40,000, which the H. O. L. C. made in order to get Group Health started, is in issue.

THE COURT:—It is not in issue so far. I, of course, cannot anticipate too far ahead and determine what turn the case will take. At the present moment, however, it is not in issue.

Let me disabuse your mind of one thing. The statements that counsel make do not make issues in the case. The issues are made on the allegations of the indictment and the plea of not guilty. I am not permitting counsel on one side or the other to make the issues in this case; they are going to be made upon this indictment and the plea of not guilty and then the subordinate issues upon the testimony which is relevant to this indictment.

That is the way the matter presents itself to me at the present time.

I myself do not want to sit here and make rulings on the admissibility of evidence unless it is obviously out of order. I want counsel to try their own cases in their own way, but when objections are made I have to rule upon them. If testimony is permitted to go in here and open up these questions, I cannot permit counsel on one side to present something that raises a subordinate issue of fact and not permit the other side to raise it.

So, I cannot bind myself as to what my rulings will be in the future. It all depends on what develops.

Mr. Lewin:—I think your Honor's discussion of the issues has been very helpful. I assure you I am going to try to stay within that ruling. During the evening I shall revamp a great deal the presentation of this case in the light of your Honor's ruling and shall eliminate much of it.

THE COURT:—I do not want to mislead counsel on one side or the other. I would not suggest for a moment what my ruling would be on any particular question. I am giving you what I think is a very sound view of the proper course that the case should take, but I will not go any further than that.

Mr. Kelleher:—Your Honor, may I suggest this: that certain of the documents of the defendants which the Government intends to offer contain references to this grant. Perhaps it might be helpful if there were some present ruling as to the relevancy of this grant.

THE COURT:—I cannot go too far about that. I have got to take up these questions as they arise. I have indicated perhaps more than a court would usually do what my general view of the situation is, for the guidance of counsel, but I do not want to be bound and I do not want to bind counsel too tightly as to what they should do. They know their cases better than I do. I am not attempting to direct them.

Mr. Lewin:—I can see now that I was offending against your Honor's ruling and did not realize it. I am sorry. I think we can cut it down very materially and be prepared to proceed accordingly tomorrow.

TUESDAY, FEBRUARY 11, MORNING
TESTIMONY OF RAYMOND R. ZIMMERMAN
(CONTINUED)

DIRECT EXAMINATION—RESUMED

By Mr. Lewin:

Q.—Mr. Zimmerman, after Group Health was incorporated on Feb. 24, 1937, did you participate in efforts of that corporation to get a medical director to handle the medical affairs of that group?

A.—Yes, I did.

Q.—Tell the jury what steps you took to find a medical director for Group Health.

A.—The first thing we did was to go and see the Surgeon General of the Army, General Reynolds. That was about 48 hours after we knew we would be financed, that we had the money. We went to General Reynolds and explained the features of our plan, all of the elements, and asked his assistance in locating and finding a man competent to give leadership to the plan as medical director.

Q.—Can you fix the approximate time of that interview?

A.—Yes, it was on March 24th.

Q.—1937?

A.—'37.

Q.—And were you able to obtain assistance from Surgeon General Reynolds?

A.—He offered assistance. He said that he would be—

Mr. Leahy (interposing):—I object to what he said.

THE COURT:—What who said?

Mr. Lewin:—Surgeon General Reynolds.

THE COURT:—Sustained.

By Mr. Lewin:

Q.—What assistance did he offer?

A.—He brought to our attention the name of Colonel Glenn R. Jones, a medical officer with whom he had a long acquaintance and whom he thought would be an ideal man for the position.

Q.—Now before you tell us more about Colonel Jones, did you make any efforts to find anyone else who might be suitable as a medical director?

A.—The next day we had a talk with Admiral Rossiter.

Q.—Who was Admiral Rossiter?

A.—The Surgeon General of the Navy.

Q.—What position does he now hold here in the city of Washington?

A.—I am not certain. In connection with the Gallinger Hospital, I believe.

Q.—The Gallinger Hospital: is that a Government hospital?

A.—Yes.

Q.—Did you ask Admiral Rossiter for assistance?

A.—We had the same kind of a discussion with him as with General Reynolds, and he told us—

Mr. Leahy (interposing):—I object to what he told you.

THE COURT:—Don't tell that; don't repeat the conversation.

By Mr. Lewin:

Q.—What did he do as a result of your conversation with him?

A.—He searched some of his files; made some telephone calls.

Q.—Did he suggest anybody for medical director?

A.—He made several suggestions, none of which were pursued because—

Mr. Leahy (interposing):—I object.

THE COURT:—Yes, sustained.

By Mr. Lewin:

Q.—Now, returning to Glenn R. Jones, what qualifications, if any, did he have for the position of medical director?

A.—Colonel Jones seemed to be an ideal man for this type of job. He was trained in George Washington University, taught there, and later went into the Army. He had been the commanding officer of the base hospital at Camp Devens, Massachusetts. I had served there as an officer and knew something of the work there, although I didn't know him; I knew the problems. He had served with distinction under General Wood at Camp Funston in the organization of the hospital there. He had received a distinguished service medal for that work.

Q.—What recommendation did General Reynolds give to Colonel Jones?

Mr. Leahy:—I object.

THE COURT:—What is that?

(The pending question, as recorded, was read by the reporter.)

Mr. Lewin:—This isn't offered for the truth; for the fact. The fact that he was recommended. I am later going to prove

that Group Health was deprived of Colonel Jones' services. I want to show the fact of what these people believed to be the qualifications of the man.

THE COURT:—It comes within the rule announced yesterday. All these preliminaries only go to show why the particular man was selected. You see we are going off on a lot of remote, collateral issues.

Mr. Lewin:—I agree completely, and I have taken it to heart, your ruling of yesterday. But I want to point out to your Honor that this strikes right into the heart of the restraints. The charge in the indictment is that this man was prevented from going along with Group Health; it is one of the restraints charged.

THE COURT:—Well, if you can show the restraint, show it.

Mr. Lewin:—We want to show that Colonel Jones was the first of the proposed medical directors whose services Group Health was deprived of because of the activity of the defendants.

THE COURT:—Well, if there is a restraint, if you can show the restraint, do so. It doesn't make any difference whether he was the first or the fourth. It doesn't make any difference whether he was competent or not. If they offered restraints, show them; whether the man was a good man or a bad man is not at this time directly in point.

By Mr. Lewin:

Q.—What attitude did Colonel Jones manifest toward your proposition?

Mr. Leahy:—That calls for a conclusion on the part of the witness.

THE COURT:—Yes, sustained.

By Mr. Lewin:

Q.—What did Colonel Jones say about your proposition?

Mr. Leahy:—Objected to as calling for hearsay.

THE COURT:—Sustained.

Mr. Lewin:—We are going to show that Colonel Jones became one of the co-conspirators in this case. We want to show at first that he was in favor of the proposition and then against it for good substantial reason; because he joined forces with the opposition.

Mr. Leahy:—That is an entirely new charge. I stand on my objection; it is pure hearsay.

THE COURT:—Sustained.

By Mr. Lewin:

Q.—Did you offer Colonel Jones the medical directorship?

A.—We did.

Q.—Did he accept it, the medical directorship?

A.—He said that he wanted—

Mr. Leahy (interposing):—I object.

THE COURT:—Will counsel step up?

(Counsel for both sides approached the bench and conferred with the Court.)

By Mr. Lewin:

Q.—Do you know Major General Ireland?

A.—No, sir.

Q.—Do you know whether Group Health offered him the medical directorship?

A.—I never heard of it.

Q.—Now passing the Colonel Jones incident for the moment, what other efforts did you make to get a medical director: Did you have a conversation with Dr. Thomas E. Neill, the president of the District Medical Society?

(The witness testified in reply to questions that the conversation was some time in April or May 1937, in the home of John Childress, an officer of the Home Owners' Loan Corporation, interested in Group Health. They went at invitation of Childress. The witness arrived after the interview had started.)

Q.—Now, will you tell the jury what was said to Dr. Neill in regard to Group Health and its medical directorship and what Dr. Neill replied?

A.—Well, we were discussing the whole problem; the method or plan of what we intended to do. One statement I remember that Dr. Neill made was that while he was interested he couldn't make a decision about accepting the directorship until he knew the attitude of the District Medical Society.

Q.—Did Dr. Neill come as your medical director?

A.—He did not.

(The witness then stated that a medical director was secured in May; Dr. Brown had been recommended by the medical director of the Veterans Bureau, Dr. Griffith. Dr. Brown had been employed in the Veterans Administration. When employed he was compensated with a salary. His first task was to develop a floor plan for the clinic, assist in the establishment of a clinic; the determination of the necessary equipment, and at the same

time he was working aggressively in trying to assemble a medical staff. During the summer of 1937 he obtained Dr. Raymond D. Selders, a surgeon.)

Q.—Now, did you in the early summer of 1937 meet with the defendant Dr. Woodward, of the American Medical Association?

A.—Yes. He came to my office.

Q.—Will you tell the jury the circumstances under which he came to your office: had you met him before?

A.—No, I had not. It was in early June, as I recall, he came to my office.

Q.—Now tell the jury just as nearly as you can recall what was said to Dr. Woodward by you and what he said to you. How did he introduce himself?

A.—He introduced himself as a doctor from Chicago, and as being in the employ of the American Medical Association; that he was also a lawyer; that he had previously lived in Washington and was acquainted here. He told me at the outset that he was familiar with what was going on here and discussed the matter of a loan from the Home Owners' Loan Corporation.

Q.—To whom?

A.—To Group Health Association.

Q.—A loan or a grant?

A.—He considered it a loan, spoke of it as a loan, and said that if Home Owners' Loan Corporation could make a loan of this character why couldn't it make loans to other organizations, other departments of the Government, or other units in the Home Owners' Loan Corporation? I told him that it was clear that he wasn't familiar with the act which created the Home Owners' Loan Corporation; that Home Owners' Loan couldn't make a loan of that character to anybody, and had not made a loan to Group Health Association, and could not make a loan to anybody else; and he asked for a copy of the act and I gave it to him.

Q.—Did he ask for anything else?

A.—Yes, he said he was on his way to Atlantic City to attend a meeting of the American Medical Association and wanted to take a copy of that contract with him which the Home Owners' Loan had with Group Health Association.

Q.—Did you give him a copy of the contract?

A.—No.

Q.—Did you have a copy of the contract?

A.—No, I did not.

Q.—Did you obtain one for him?

A.—No, I did not.

Q.—What did you tell him with regard to the contract?

A.—I told him the contract was in the office of the secretary of the Corporation; I couldn't supply him with it.

Q.—Did he say anything else about Group Health Association at that time?

A.—Yes, we talked about it for a while.

Q.—What did he say?

A.—Well, he said that the District Medical Society was deeply concerned about the whole matter and that it was going to be a subject of discussion at the Atlantic City meeting.

Q.—Did he say anything further as to the attitude of the American Medical Association and the District Medical Society toward Group Health Association?

A.—He made it clear that they were opposed to it; that they weren't in favor of it—

Mr. Leahy (interposing):—I object—that is a conclusion: What did he say?

By Mr. Lewin:

Q.—As nearly as you can recall, give Dr. Woodward's words on that subject, and you can describe his attitude as well.

A.—His attitude was clearly antagonistic. He made it clear that he was not in favor—

Mr. Leahy (interposing):—Just give us what he said.

THE COURT:—Yes; what was said by the doctor.

The Witness:—He said the whole plan was going to be given a going-over at the American Medical Association.

By Mr. Lewin:

Q.—Did he say anything about what would happen to Group Health Association after this meeting of the American Medical Association?

A.—He predicted that it would be the end of it.

Mr. Leahy:—I object to that.

Mr. Lewin:—What is the matter with that? Isn't that the substance of what he said? He predicted that it would be the end of it. How can you get it any closer?

THE COURT:—Are those his words, in substance: I don't expect him to give the exact words.

The Witness:—Yes.

THE COURT:—That may stand.

In reply to questions the witness stated he attended a meeting of the executive committee of the District Medical Society around June of 1937.

Q.—Now how did you happen to go to that meeting?

A.—I don't recall, definitely. I was called and invited to attend. I think it was Mr. Penniman. It could have been Dr. Brown.

Q.—Who is Mr. Penniman?

A.—He was the president of the Association.

Q.—Do you remember Dr. Conklin being there?

A.—I think he was there.

Q.—Was the defendant F. X. McGovern there?

A.—I am not sure.

Q.—Do you know Dr. McGovern; did you know him before that time?

A.—I don't think so.

Q.—Was Dr. William M. Sprigg there?

A.—I don't remember who the gentlemen were. I was invited to be present. I hadn't arranged the meeting and wasn't clear as to the purpose of the meeting until after I got there; I can't remember the names of the people there.

Q.—Was Dr. Neill there?

A.—I don't remember that.

Q.—What subjects were discussed at that meeting?

A.—The meeting was called for the purpose of explaining to the group that Group Health was about to operate; the kind of plan it was, and how it was intended to function.

Q.—And was that explanation made by you?

A.—The speakers were Mr. Penniman and Dr. Brown; Mr. Penniman spoke first and Dr. Brown then. I didn't speak.

Q.—Did the members of the executive committee ask questions?

A.—Yes.

Q.—Was it a friendly meeting?

A.—Yes, not unfriendly; it was a pleasant meeting.

Q.—How long did it last, approximately?

A.—I don't remember; not too late.

Q.—Where did the meeting take place?

A.—In the office of the District Medical Society.

Q.—Some time later did you have occasion to attend another meeting with representatives of the defendant District Medical Society?

A.—When they came to meet with the Board of Trustees of Group Health Association; I attended that meeting.

Q.—Can you remember any of the doctors who came from the District Medical Society to attend the meeting with your board?

A.—A Dr. Macatee.

Q.—Was Dr. Conklin there?

A.—Again I wouldn't be sure.

Q.—Dr. Groover?

A.—Yes, he was there.

Q.—Dr. Verbrycke?

A.—I don't remember; again I wasn't an officer of the Association, and I was invited to attend.

Q.—Do you remember who was present for the trustees of the Group Health Association?

A.—Well, the meeting was well attended. My judgment would be that the majority were there; some could have been absent.

Q.—Do you know whether arrangements were made to take down the conversations or discussions there?

A.—Yes, I remember that notes were taken.

Q.—What was the subject matter of the discussion at that meeting?

By Mr. Lewin:

Q.—Tell us what the subject matters were that were discussed there; was Group Health Association discussed again?

A.—Yes.

The witness testified that Group Health Association, Inc., was opened the first of November 1937. He saw Dr. Neill again after the clinic was opened, in his office on a Saturday afternoon, with Mr. Penniman, Mr. Kirkpatrick and Mr. Loomis.

Q.—Who sought the interview, if you know: Dr. Neill or the Group Health Association officials?

A.—I think the Group people. I didn't arrange the meeting.

Q.—What was the subject matter discussed?

A.—I don't believe I can remember the details of the meeting; I haven't refreshed my memory.

Q.—Was the meeting concerned with Group Health Association?

A.—It was.

Q.—Mr. Zimmerman, did you have occasion to ascertain what the salaries of the various members of Group Health Association were about the time the clinic opened, Nov. 1, 1937?

A.—Yes, I knew at the time.

Q.—Mr. Zimmerman, will you tell the jury what percentage of the members of Group Health Association, as of Nov. 1, 1937, when your clinic opened, earned \$4,000. or less?

A.—Eighty-four per cent earned \$4,000 or less.

Q.—What per cent would you say earned less than \$2,000 a year?

A.—Fifty-eight per cent, fifty-nine per cent—58.9—58.8.

Mr. Lewin:—Your Honor, with the exception of the subject matter which is subject to your Honor's ruling, I have finished the direct examination of this witness. I can conclude it with the privilege of bringing him back?

THE COURT:—I suggest I consider that point through the noon recess, and if I change my ruling I will give you an opportunity to recall this gentleman on that one ground; which, of course, would give the other side an opportunity to cross-examine on it.

CROSS EXAMINATION

By Mr. Leahy:

Q.—As director of personnel what were your duties?

A.—Well, as director of personnel I concerned myself with questions of employment policy; personnel policy; standards of employment; questions of pay; questions of salary administration; questions of hours of work and working conditions; and questions of employee health; questions of training; and some of the questions of organization.

Q.—Did you have the authority to hire and fire?

A.—No. That authority rests in the chairman of the Board.

Q.—You had no authority whatsoever about that. Why, do you think?

A.—Well, it is a legal point, sir.

Q.—Well, now, you know what I mean. Let me put it in everyday language. Could you say to Clerk John Brown, hand him a red ticket and say, "You are through work two weeks from today?"

A.—I could say that sort of thing to an employee in my own division but not to employees outside of my own division.

Q.—How big was your division?

A.—Less than a hundred.

Q.—Outside the division did you have any authority to say to John Brown, "Your services will terminate on such-and-such a date?"

A.—No, sir.

Q.—It was only the chairman of the Board who had that authority?

A.—No. You asked—your question related to who had the appointing power. You are talking now about who had the responsibility of discharge.

Q.—Well, I asked the question, probably it wasn't technically put as a director of personnel would put it, but I asked the question Who had the authority down there to hire and fire?

A.—That's right.

Mr. Lewin:—I object to this line of questioning, your Honor.

THE COURT:—I don't see the materiality of it.

Mr. Leahy:—Shall I approach the bench a moment?

THE COURT:—Well, if you wish to express it. You may have some reason that I cannot think of.

Mr. Leahy:—I would like to.

THE COURT:—Very well.

(Counsel for both sides approached the bench and conferred with the Court in a low tone of voice.)

The Witness:—Before you begin, I think I should correct a former statement. I think I answered you that I had authority to discharge an employee that worked in my own division. The correct statement would be that I had authority to recommend it, but the power to employ and discharge lies in the Board and not in any subdivision of the Board.

By Mr. Leahy:

Q.—Well, now, you mentioned the chairman of the Board at first. Who was that chairman?

A.—John H. Fahey.

Q.—Is he still chairman?

A.—Yes, sir.

By Mr. Leahy:

Q.—Can you give us the exact date now, and, if it was given, will you repeat it, of the employment of Dr. Brown as the medical director?

A.—My recollection is that it was June 5th, or 7th. It was the early part of June. I cannot give the correct date. I haven't refreshed my mind.

Mr. Lewin:—I am sorry. I thought he had given it.

By Mr. Leahy:

Q.—Had the arrangements been made for his employment before the actual contract was signed?

A.—What contract?

Q.—For his employment as medical director. You had met Dr. Brown before June 7?

A.—Yes.

Q.—Did you employ him personally?

A.—I did not.

Q.—At all events, then, you went to Dr. Neill's home on the information of Mr. John Childress? Is that right?

A.—That's right.

Q.—And he is the assistant to John H. Fahey, isn't he, or wasn't he then?

A.—I think that is his title, "assistant to."

Q.—And he likewise was interested, was he not, with you, in this G. H. A.?

A.—As a member. I wouldn't say that he was an active—that his interest was more than one of a member. I don't remember his working on any committees, if that is your point.

Q.—Do you recall what interest prompted him to call you to interview Dr. Neill as the medical director or possible medical director of Group Health?

Mr. Lewin:—I am afraid I will have to object to this, your Honor.

THE COURT:—Objection sustained.

By Mr. Leahy:

Q.—Was Childress there at Dr. Neill's home?

A.—It was at Mr. Childress' home.

Q.—At Mr. Childress' home?

A.—Yes, sir. He was present.

Q.—Who else was there besides Mr. Childress and yourself and Dr. Neill?

A.—Mr. Penniman was there.

Q.—Anybody else now whom you can recall?

A.—I don't recall.

Q.—How long were you there?

A.—Not more than an hour, I don't think. I came a little late, as I recall.

Q.—Your recollection is that you were there at least an hour with Dr. Neill?

A.—No, I won't say that.

Q.—Can you give us your recollection as to how long you were there that day?

A.—I would say in the neighborhood of an hour.

Q.—Were any notes taken of the interview?

A.—None that I know of. I didn't take any.

Q.—It was a friendly meeting?

A.—Certainly.

Q.—At Mr. Childress's house. And isn't it a fact that it there developed that Mr. Childress was a personal friend of Dr. Neill's?

A.—It didn't develop there. It was known.

Q.—It was known?

A.—That's right.

Q.—And Mr. Childress as a friend of Dr. Neill was interested in turn to see if Dr. Neill would be interested to become the director of G. H. A.?

A.—That's it.

Q.—And you explained the general plan, didn't you?

A.—I did not.

Q.—Well, some one in your presence. Isn't that true?

Q.—I think it was done, but it was done before I got there. Q.—Do you recall of Dr. Neill's having said anything more than that he would want to find out what the attitude of the District Medical Society was on it?

A.—No, I don't recall.

Q.—Do you recall that he then said at that meeting, "Why, I have just been elected president and am president-elect of the Medical Society of the District of Columbia?"

A.—I didn't hear him say that.

Q.—Did you hear Dr. Neill say anything in substance to the effect that he would look into the matter and that if Group Health was legal, if it was ethical, if it was economically sound, that the job of medical director was just the job he was looking for? Did you hear him say that?

A.—No, I didn't hear him say that.

Q.—Did he say anything in substance to that effect?

A.—Well, as I testified a minute ago, the substance of what I heard him say was that before he would consider the medical directorship, that he would have to know the attitude of the District Medical Society toward that type of practice.

(The witness then was queried as to the meeting at the office of the District Medical Society.)

A.—I remember that Dr. Groover talked.

Q.—Dr. Groover? Is that whom you said?

A.—Yes.

Q.—You know he is dead, do you not?

A.—I do. Oh, I have the recollection—there was quite general participation in the discussion, but I don't remember who made the principal statements.

Q.—That was a friendly meeting?

A.—I wasn't acquainted with many of those doctors and I don't remember.

Q.—To your knowledge had you ever met or seen any of those doctors on the executive committee before that evening?

A.—I had seen some of them, but I wasn't personally acquainted, I don't think, with any of them.

Q.—Had you ever talked with them or been in a group who were talking with them before this meeting?

A.—I don't think so.

Q.—Had you known Dr. Neill before you met him at Mr. Childress's house?

A.—No. I knew who he was, but I didn't know him.

Q.—Now, this meeting was a friendly discussion, was it not, as to what the plan of G. H. A. was?

A.—It was friendly for the most part. A little spirited in spots, but not more than you would expect.

Q.—There was discussion back and forth about the merits pro and con; is that right?

A.—Right. And sometimes the meeting was controversial.

Q.—Sometimes the meeting would get a little warm in spots as the controversy would develop about the merits of this point or the demerits of that point; is that right?

A.—That's right.

(After some discussion as to the conversation at this meeting dealing with estimates of cost, the examination continued.)

Q.—But in connection then with the clinic, was there any question raised as to whether you could equip a clinic, lease the quarters, hire a staff of doctors, hire nurses, on the rates that you were going to charge?

A.—I don't recall.

Q.—Well, don't you remember that they asked you broadly—not you, but I mean Mr. Penniman or Dr. Brown or some one in your presence and yourself—asked you how you were going to finance a clinic with all the equipment which you said you were going to put in there?

A.—My recollection of that meeting, sir, is that there wasn't very much discussion on that point.

Q.—Well, don't you remember one member of the executive committee saying to Dr. Brown, "Doctor, will you show us the contract on which you got this money?" and Dr. Brown said, "No, I won't." Do you remember that?

A.—I think I do, but I could be wrong.

Q.—What is your best recollection? Was or was not that request made to Dr. Brown and did he or did he not make that answer?

A.—I am not sure. I think that the request was made to see the contract there, but I am not sure.

Q.—And is your best recollection that the request was not acceded to and that he did not permit the contract to be seen?

A.—That's right. I don't think it was.

Q.—Now, don't you remember this, too, at that meeting, when the executive committee had listened to the outline of your plan and they found that the plan provided for those only who were able to pay dues and they said to either Mr. Penniman or Dr. Brown or to you: "Well, what are you going to do with the poor chap who cannot pay or who isn't able to join your association? Who is going to take care of him?" And do you remember Dr. Brown making the answer: "Oh, we will throw them over on you." Do you remember that?

A.—I remember that the subject—the point was raised. I don't remember exactly what Dr. Brown's comment was.

Q.—Well, it was to the effect that the District Medical Society's members would take care of those you didn't want. Isn't that right?

A.—I cannot testify to that.

Q.—You have no recollection on it at all?

A.—I remember that there was some pleasantry in a comment that Dr. Brown made right at this time and on this point. It was in connection with Dr. Brown making the point that a group of this sort wasn't a charitable organization; it was organized for the purpose of making charity unnecessary. That was the spirit of the point that he was making.

Q.—Well, do you remember that when charity did become necessary that he said then it would be for the District Medical Society members to take care of the charity?

A.—(No answer.)

Q.—See if I can refresh your recollection this way, Mr. Zimmerman: Don't you remember then Mr. Penniman making the statement, "Well, nobody can play golf in a golf club unless he pays his dues"?

A.—Yes.

Q.—You remember that?

A.—Yes. I had forgotten, but I do remember now.

Q.—And wasn't it in that connection that he said those who paid the dues we will take care of, and those who cannot you members of the District Medical Society will take care of?

A.—I remember the point was brought out it was only those who were members of the association who would receive the benefits. Although I do remember, too, that the statement was made by Brown or Penniman—the point was brought out—that the staff would want to be cooperative and helpful in connection with charity cases after hours. That point was brought out. But it was an incidental point, their making any claims that they were going to do charity work, I am sure.

Q.—Now, was the meeting at G. H. A. headquarters a sort of adjourned meeting of this one at the headquarters of the District Medical Society?

A.—I would say that it was. It was suggested that the medical people come back to the Group Health trustees with a suggested plan.

Q.—Now, did you meet any members of the executive committee in between the meeting of the executive committee about which we have just talked and the second meeting at Group Health headquarters?

A.—I don't think I did.

Q.—Do you recall whether you attended a luncheon at the Raleigh Hotel with Mr. Penniman?

A.—And Dr. McGovern.

Q.—Dr. McGovern.

A.—I did, but I don't remember when it was. It could have been in between, and if it was, I did meet with one of their members.

Q.—How did you happen to be present at that luncheon?

A.—Mr. Penniman called me on the telephone and asked me if I would like to have lunch with him and Dr. McGovern.

Q.—Now, do you remember what Dr. McGovern was asking for at that luncheon from Mr. Penniman? Try to think.

A.—Well, I know what my feelings were there when we came away from the luncheon. I was very much at a loss to know what the purpose of the meeting was.

Q.—I want to know what Dr. McGovern asked Mr. Penniman, the president of the association, at that meeting.

A.—I don't recall that he asked for anything. We talked about horses and golf and dogs and everything else.

Q.—Did he ask how you were going to obtain funds to finance the clinic?

A.—I have heard that he did ask that, but I didn't hear him ask that, ask about the contract. I didn't hear him make that request, and was surprised when I was told that he claimed that he had asked for the contract at that time.

Q.—Well, what did you do at that meeting, at the luncheon, just talk golf and dogs and horses?

Mr. Levin:—Had lunch, I guess. That is what you usually do at luncheons.

The Witness:—It wasn't an important luncheon.

Q.—Let me see if I can refresh your recollection again. Do you remember a discussion at that luncheon and Mr. Penniman saying to Dr. McGovern, "You have no more right to see that contract than you would to see a contract between an express company and the owner of a store on F Street"?

A.—No, I don't remember that.

Q.—Don't even remember the lunch. All right. Now, do you remember how long after that day when you were at the Raleigh Hotel that the meeting occurred at the Home Owners Loan headquarters?

A.—I can't answer that. Sorry. I don't remember.

(The witness was queried as to events leading to the opening of the clinic of Group Health Association.)

Q.—Had you leased the quarters for the clinic when you appeared before the executive committee of the District Medical Society?

A.—I don't remember.

Q.—Was Group Health any further along than having just been organized, its charter taken out, its by-laws prepared, and the medical director appointed when you met the executive committee of the District Medical Society?

A.—Well, I think all those things that you mentioned had been done prior to that meeting. Whether we were further along, yes, I would say we were further along.

Q.—Can you now tell whether you had made arrangements to lease the quarters for your clinic?

A.—I don't know the date of the lease.

Q.—Did you have anything to do with the arranging of the lease?

A.—No, sir.

Q.—Did you have anything to do—

A. (continuing).—Wait a minute. Did I have anything to do with it? Some discussions. I was invited to take part in discussions, and I looked, with a committee, at two or three places.

Q.—Then you had just as much to do with it as any other member of the committee?

A.—No, I didn't sign the contract and I wasn't a party to the negotiations on price.

Q.—Did you go up to see the proposed site before it was selected?

A.—I did.

Q.—And you went to other sites, didn't you?

A.—That's right.

Q.—You assisted, then, in the selection of the location?

A.—I took part in it. It was not my decision. I don't think I was present when the decision was made. There was a responsible committee that was dealing with that problem. I don't think I was very helpful.

(The witness was queried as to his meeting with Dr. W. C. Woodward.)

Q.—Were any notes taken of the meeting at all?

A.—I dictated a memorandum of the meeting after he left. I called Mr. Penniman to say that I had had—that Dr. Woodward had been in my office. I found that he was not in his office, was out of town, and I wanted him to know that I had had this visit. I made a memorandum. Is that what you mean by making notes? There was a memorandum written.

Q.—Did you make it just as soon as Dr. Woodward left your office.

A.—Yes, I would say within an hour.

Q.—Where is that memorandum, Mr. Zimmerman?

A.—I don't know.

Mr. Lewin:—I have it. Would you like to have it?

Mr. Leahy:—Yes.

(There was further discussion of the conference with Dr. Woodward.)

Q.—And this is a memorandum that you made and transmitted—was it to Mr. Penniman, W. F. Penniman?

A.—It was a matter of letting him know. I was not an officer of the organization and I felt that a thing of this sort—I felt that he had called on the wrong person.

Q.—Did you tell him so?

A.—My recollection is that I told him I was not an officer of Group Health.

Q.—Did you tell him to go over to see Mr. Penniman to get the contract?

Mr. Lewin:—Why don't you ask him to read this memorandum now?

Mr. Leahy:—Now, please. We are having a good time together. Don't interrupt us.

Mr. Lewin:—I think it would be much more fair. Here is the memorandum right in his hands.

Mr. Leahy:—Who handed it to him?

Mr. Lewin:—You did, at my request.

By Mr. Leahy:

Q.—Read it over, Mr. Zimmerman, and refresh your recollection.

Mr. Lewin:—And let us have it read to the jury.

Mr. Richardson:—Oh, no.

Mr. Lewin:—Why do you want to keep it from the jury?

By Mr. Leahy:

Q.—Have you read it?

A.—I told him he ought to talk to our Medical Director.

Q.—Who was your Medical Director on June 5?

A.—Dr. Brown—if he had been employed then. Yes; I guess he was. I don't remember the date he reported for work, but he had been selected and approved. He was the Medical Director; yes.

Q.—You told him that he ought to go and see your Medical Director, and then he asked you the question, "You mean, Dr. Brown?" And then you answered, and he said, "I know him, having met him at the Veterans Administration?"

A.—No; he said that he knew him.

Q.—And then did you tell him that Dr. Brown would be at the American Medical Association convention at Atlantic City?

A.—That is right.

Q.—You knew that?

A.—I had been told that he was going to attend.

Q.—After having seen this memorandum, Mr. Zimmerman, do you recall now that there was a discussion about money from the Federal Home Loan Bank Board which Group Health Association had received?

A.—With whom?

Q.—With Dr. Woodward.

A.—Yes. As I testified a minute ago, we opened up on that note.

Q.—You opened up on what?

A.—He made the point that he understood a loan had been made, and he was concerned that they would make other loans. That was the first part of our conversation. And I told him it was not a loan.

Q.—You knew it was not, did you not?

A.—Yes, sir.

Q.—Did you tell him what it was?

A.—I don't know that I did.

Q.—Why didn't you want to tell anybody about what that was? Why was Group Health Association trying to keep secret this contract which it had with the Federal Home Loan Bank Board?

Mr. Lewin:—Maybe there is something in the memorandum that explains that.

A.—It was very clear from the attitude of Mr. Woodward that he was not friendly nor did he intend to be helpful to us, and he told me that he was a lawyer representing the American Medical Association, and I suspect that I was a bit guarded in my conversation.

By Mr. Leahy:

Q.—What was there in the transaction that you were afraid of, whether he was a lawyer or not?

Mr. Lewin:—He did not testify that he was afraid of anything.

Mr. Leahy:—He said he was guarded.

Mr. Lewin:—Yes; but he didn't say he was afraid. He is not afraid.

By Mr. Leahy:

Q.—Why were you guarded, whether he was a lawyer or a judge or who it was that was talking with you about this transaction?

A.—I think there were plenty of people who were familiar with the nature of that contract. It was discussed with people frankly and freely who we thought could be helpful and would be helpful to us.

Q.—In other words, you discussed it frankly and freely with people that you thought would be helpful to you?

A.—Medical people, people interested in the business arrangements of this organization, the administration plan.

Q.—Who were the people that you discussed it with?

A.—Oh, there were plenty of them.

THE COURT:—I think that is sufficient.

(Mr. Leahy then took up the question of the contract between G. H. A., Inc., and H. O. L. C.)

Q.—Do you think that was cooperation—refusing to give the District Medical Society or the American Medical Association information as to how you could make this an economic success?

A.—I would say that the details of the contract were not half as essential as were the principles of the plan.

Q.—In other words, you did not consider the ability to put the principles into effect as important enough to impart them to the District Medical Society or the American Medical Association; is that right?

A.—We knew what could be done and we knew what had been done, and we went ahead and did it, and it is running.

Q.—But you refused to tell the District Medical Society or the American Medical Association what you had done to finance these principles you are talking about; is not that right?

A.—No.

Q.—Didn't you just tell us that the contract of the Association or the terms of it were nobody's business?

A.—No, sir; I didn't say that.

Q.—What did you say?

A.—I told Dr. Woodward that I didn't have the contract. (The witness was asked about a visit to the office of Dr. Neill.)

Q.—Do you recall now when that was.

A.—No. I recall it was a Saturday afternoon.

Q.—Do you remember where it was?

A.—It was in his office.

Q.—Do you remember where his office was at that time?
 A.—No; I don't remember.
 Q.—Was anybody with you?
 A.—Yes. I was in a party that went there.
 Q.—Who was in that group?
 A.—Mr. Penniman, I think, Mr. Kirkpatrick and, I think, Mr. Loomis.

Q.—Who was Mr. Kirkpatrick?
 A.—He was the vice-president of Group Health Association.
 Q.—What position did he hold in the Home Owners Loan Corporation?

A.—He was in the Accounting Division.
 Q.—Who was Mr. Loomis?
 A.—He is assistant to the chairman of the Board.
 Q.—Who is the chairman of the Board?
 A.—John Fahey.

Q.—What was the purpose of your going to see Dr. Neill on that occasion?

A.—I have forgotten. I don't remember the purpose of the meeting now. It seems to me it was some case—

Q.—Is it as hazy in your mind now as the luncheon at the Raleigh Hotel?

A.—I don't remember specifically. There are others that can testify better to this. I was not responsible for calling the meeting.

Q.—Have you any memory now of anything that took place at the meeting which you can tell us about?

A.—Yes. I can testify to this very definitely, that Dr. Neill was now in a critical frame of mind toward Group Health.

Q.—What made him critical? What did he say to indicate that?

A.—He was opposing the principle of prepayment at that time, which surprised me very much.

Q.—That is one thing. You remember that?

A.—I do, very definitely.

Q.—Anything else?

A.—That is all I recall.

Mr. Leahy:—Dr. Neill, will you stand, please?
 (The person addressed stood as requested.)

By Mr. Leahy:

Q.—Do you recognize Dr. Neill?

A.—Yes, sir.

Mr. Leahy:—Now you may be seated, Dr. Neill.

By Mr. Leahy:

Q.—Mr. Zimmerman, is it your recollection that when you met Dr. Neill at Mr. Childress' home you asked him if he would be interested in becoming Medical Director?

A.—No; I didn't ask him.

Q.—Did some one in your presence?

A.—No.

Q.—Let me see if I can refresh your recollection further. Is it not a fact that when you were at Mr. Childress's house in the group which was talking with Dr. Neill, Dr. Brown had already been appointed Medical Director?

A.—I would say that there would have been no purpose to that meeting, then. We were looking for a Medical Director.

Q.—Were you not looking for a surgeon?

A.—My recollection is that they were going to need a surgeon, but that they were looking for a medical director at that time.

Q.—Was it not in connection with your wish to have Dr. Neill act as the surgeon of G. H. A. that you and the others were present there that evening?

A.—That is not my recollection.

Q.—You said that Dr. Neill left. Do you recall the reason for his leaving?

A.—No; I didn't hear.

Q.—See if you can refresh your recollection. Do you not remember that Dr. Neill said that he had to attend and preside at a meeting of the District of Columbia Medical Society at that very time.

A.—My impression was, sir, that he had to go on a case. I don't know it, and he could have told the others and I did not hear it. We were in a large room.

Q.—But you have no memory of Dr. Neill's saying anything about his having to attend a meeting of the District Medical Society?

A.—No.

Q.—And you have no recollection, as he left, of his saying, in substance, "Gentlemen, if this is legally, ethically, and economically sound it is the job I would like."?

A.—No; I don't remember his saying that.

Mr. Leahy:—Dr. Woodward, will you stand up, please?
 (The gentleman addressed stood as requested.)

By Mr. Leahy:

Q.—Is that the gentleman who came to see you that morning in your office?

A.—I think so. I have not seen the doctor since.

Q.—See if I can refresh your recollection a little more about that meeting, Mr. Zimmerman. Do you recall that when Dr. Woodward came to see you at your office he asked you if he might see a copy of the contract?

A.—My recollection is that he asked for a copy of it.

Q.—Did you then say, "I will have to go out and consult counsel before I answer that question"?

A.—No; I don't remember that.

Q.—Do you remember that you did leave the room at any time, leaving Dr. Woodward in your office?

A.—No. Did I leave the room? If I did, I had forgotten it. I don't think I talked with any one; I didn't consult any one.

Q.—You have no recollection?

A.—I went outside—I think I stepped into the outside room, now that you remind me; but I had forgotten it. I stepped outside the door to the secretary's office.

Q.—What for?

A.—Frankly, I don't know.

Q.—Did you not make a telephone call?

A.—No; I don't think so.

Q.—What was there that took you away from the conference with Dr. Woodward, out into your secretary's room?

A.—I believe that was the time that I learned that Mr. Penniman was not in his office. I thought that that type of meeting should be held with the president of the organization, and not with some person who was not officially connected with Group Health.

Q.—Do you remember now that you did telephone Penniman's office?

Q.—I could have.

Q.—Well, didn't you?

A.—I am not sure that I did; but I know that shortly after—I either did then or I did after Dr. Woodward left. The point is, for the jury, that I got in touch with Mr. Penniman's office either before Dr. Woodward left or immediately after, to advise him of the substance of our conversation.

Q.—And the point, also for the jury, is that you did leave the room and go to your secretary's room for a purpose which you cannot now recall?

A.—Just like stepping to the door.

Q.—You did step out of the room?

A.—If you say I did. I had forgotten it.

Q.—I don't say anything. I wasn't there.

RE-DIRECT EXAMINATION

By Mr. Lewin:

Q.—Mr. Zimmerman, I would like you to refer to this memorandum of yours to Mr. Penniman, dated June 5, 1937, which was shown you by Mr. Leahy, and I will ask you to look at the next to the last sentence of that memorandum. Just read it to yourself (handing a document to the witness).

I want to know whether that refreshes your recollection as to the substance of anything Dr. Woodward said to you about what he expected to do.

A.—No; I don't remember his exact words.

Q.—I did not ask you for that. I asked you whether it refreshes your recollection as to the substance of what he indicated to you in his conversation he expected to do.

A.—As I testified a minute ago, he said he was going to Atlantic City to a meeting of the A. M. A., and this whole subject was going to get a careful working over.

Q.—What did he say he expected to do, if anything?

A.—I don't think he said specifically what he was going to do.

Mr. Lewin:—Your Honor, I would like to offer that report in evidence. It is a report from Mr. Zimmerman to Mr. Penniman that was referred to by counsel on cross examination.

Mr. Leahy:—I object, if your Honor please.

Mr. Lewin:—You recall that Mr. Leahy went into the subject very fully about what Mr. Zimmerman reported to Mr. Penniman, or attempted to report to him.

Mr. Richardson:—That does not help it any.

Mr. Kelleher:—Another thing, your Honor: he went into detail as to whether he had written any memorandum and why he had written it, and we think the jury is entitled to see the memorandum, to see what the purpose of it was.

THE COURT:—Counsel on both sides have taken it up as a means of refreshing the recollection of the witness.

Mr. Lewin:—Mr. Leahy pressed the witness on cross examination as to his communication to Penniman—

Mr. Leahy:—I did not press any such thing.

Mr. Lewin:—Oh, yes. He even made statements about his going out into the office to speak to his secretary.

THE COURT:—Step here a minute, Mr. Leahy.
(Counsel for both sides approached the bench and conferred with the court in a low tone of voice.)

By Mr. Lewin:

Q.—Mr. Zimmerman, you were asked on cross examination about the amount of the dues which Group Health Association charged its members. Will you tell the jury what those dues were initially?

The Witness:—Two dollars and twenty cents a month for individual members, and \$3.30 a month for family members.

By Mr. Lewin:

Q.—What type of service was given members in return for those dues?

A.—What we called a substantially complete medical service, including hospitalization and examination.

Q.—How much hospitalization was given a member or his dependents in return for those dues?

A.—Twenty-one days, I believe, for any single illness.

Q.—What site was finally selected for a clinic?

A.—On I Street between Thirteenth and Fourteenth streets.

Q.—Why was that site selected? Did it have any advantages?

A.—It was centrally located, and it was a nice modern building. It seemed to be about what we wanted.

Q.—Were the floors of that building leased by Group Health Association?

A.—Yes; one floor.

Q.—Were alterations made in the building?

A.—Yes.

Q.—What was the purpose of making such alterations?

THE COURT:—I do not think I would go so much into detail, Mr. Lewin.

A.—To make it suitable for our purposes, is all.

By Mr. Lewin:

Q.—You said that Group Health Association was acquiring its medical equipment and apparatus during the summer?

A.—That is right.

Q.—Who was the active man in making those selections?

A.—Dr. Brown, the Medical Director.

RE-CROSS EXAMINATION

By Mr. Leahy:

Q.—Are you familiar with the medical services which Group Health agreed to render for the dues which you have just mentioned?

THE COURT:—I think we are going to waste time on that. Was there not a written contract with the members?

Mr. Leahy:—I just wanted to identify it. That is the very thing I had in mind, your Honor.

THE COURT:—Very well.

By Mr. Leahy:

Q.—Will you kindly look this over (handing a document to the witness) and see if you can identify it as the by-laws?

Mr. Kelleher:—The by-laws are already in evidence, your Honor, under a stipulation, as Exhibit 1.

THE COURT:—I think that is true, is it not?

Mr. Leahy:—I did not know they were, your Honor. If they are, all right.

Mr. Burke:—The stipulation is in evidence.

THE COURT:—It will be understood now that they are in evidence. Both sides agree they are in evidence.

By Mr. Leahy:

Q.—There was just one question that I wanted to ask you with reference to that matter of Dr. Woodward's chat with you, and this is a concluding question. Did you say to Dr. Woodward that Dr. Brown would have a copy of the contract at the American Medical Association meeting in Atlantic City the following day?

A.—No; I did not.

Q.—You are sure about that?

A.—Yes. I said that Dr. Brown would be there.

Mr. Leahy:—That is all.

TESTIMONY OF ELSIE P. SADLER

DIRECT EXAMINATION

By Mr. Kelleher:

Elsie P. Sadler stated she was employed with the Home Owners Loan Corporation on July 26, 1937, as a clerk-stenographer. She attended a meeting of the board of trustees of G. H. A. on the evening of that day by order of Mr. Penniman. She was assisted by Roseannette Barrent.

Mr. Kelleher:—I will ask the reporter to mark this transcript for identification.

(Transcript of notes of meeting of July 26, 1937, was marked U. S. Exhibit No. 10 for identification.)

CROSS EXAMINATION

By Mr. Leahy:

Q.—Miss Sadler, did you say that you were employed as a clerk-stenographer down at H. O. L. C.?

A.—Yes, sir.

Q.—What do you do? What are your duties?

A.—I was secretary to Mr. Penniman's assistant, doing stenographic work in the office.

Q.—Did you both transcribe what each one said at the meeting?

A.—We made one transcription, but we checked our notes together before we wrote it.

Q.—Did you make the transcription of Miss Barrent's notes?

A.—I typed—I checked my notes with her notes and we sat together. We took the notes and checked our notes and we wrote what both of us had.

Q.—I am now showing you page 15. What does the "and so forth, and so forth" mean at the bottom?

A.—We sat at the end of a large table, and there were certain things said that we were not able to hear. We took every word that we could hear, but there was just an occasion or so when we were not able to hear.

Q.—Do you know for how long that occasion would last, or how much was said?

A.—Not very much.

TESTIMONY OF WILLIAM FREDERICK PENNIMAN

DIRECT EXAMINATION

By Mr. Kelleher:

William Frederick Penniman stated he was Deputy Governor of the Federal Home Loan Bank System, since January, 1938. He was in the Home Owners Loan Corporation in 1937, and went over to the new position in 1938. He was the Assistant General Manager in charge of the Pacific Coast area. He first came with the H. O. L. C. in November, 1933. Previously he had been living in New York. He was with the investment house of Blythe & Company, 120 Broadway, New York.

He had participated in the formation of G. H. A. in the early part of 1937 and was elected president.

Mr. R. T. Berry was elected secretary-treasurer.

Mr. W. C. Kirkpatrick was elected vice president.

He had participated in conferences with the Surgeons-General of the Army and Navy in an effort to locate a medical director.

The conference with Dr. Neill was prior to the employment of Dr. Brown as medical director?

Q.—Will you tell us what you recall concerning the conversation between you and Dr. Neill?

A.—The engagement was arranged for by Mr. Childress at his home, and Mr. Horace Russell, Mr. Zimmerman and I met him there at Mr. Childress's home and we discussed Group Health.

Q.—When you say you discussed Group Health, will you tell us whether you explained to him the nature of the organization?

A.—Oh, yes.

Q.—Tell the jury what you told Dr. Neill about G. H. A.

A.—We told him that it was the group practice of medicine whereby these employees would be able to get full medical service at a given rate per month, the purposes for which we were attempting to establish Group Health, and that we were very anxious to get just as competent a medical director as possible, and that we would be very happy indeed to have Dr. Neill serve as Medical Director.

Q.—Let me ask you this before we go on any further. What purpose did you tell him that G. H. A. was organized for?

A.—In order to give medical service to employees at a stipulated rate.

Q.—Did you explain to him that G. H. A. contemplated group practice?

A.—Yes.

Q.—Did you explain to him that doctors were to be employed on a salary basis?

A.—Yes.

Mr. Leahy:—Don't lead him. Ask him what was said.

By Mr. Kelleher:

Q.—What did you tell Dr. Neill about the method by which employees would pay for the services of G. H. A.

A.—What the employees who were members would pay?

Q.—Yes.

A.—That they would pay on a monthly basis—dues on a monthly basis.

FEBRUARY 11, AFTERNOON

Thereupon

DIRECT EXAMINATION—RESUMED

By Mr. Kelleher:

Q.—Did you explain to Dr. Neill the duties of a medical director of G. H. A.?

A.—Yes, we went into it very thoroughly with Dr. Neill. We were particularly anxious to have him as the medical director and, in making the offer, we went into the subject very thoroughly as to what we would expect the doctor to do.

Q.—And you told him that in detail?

A.—Yes. Our idea of the medical director was that he would be in charge of the staff and nurses and have everything to do with the medical side of it.

Q.—Will you please tell us what Dr. Neill said to you?

A.—My recollection is that he said he didn't see anything wrong with the setup, with what we wanted to do. He had some ideas and made some reference to a type of service being offered by the Potomac Electric, or Chesapeake & Potomac Telephone Company—I don't remember which—in which either he or his partner was interested, but that his final decision would have to rest with the attitude of the District Medical Society.

Q.—Did Dr. Neill become medical director of G. H. A.?

A.—No, he didn't.

Q.—Who did become medical director?

A.—Dr. Henry Rolf Brown.

Q.—Who suggested Dr. Henry Rolf Brown to you?

A.—Mr. Griffith, or Dr. Griffith of the Veterans Administration.

Q.—When did Dr. Brown become medical director?

A.—I think he officially assumed his duties in the early part of June 1937.

Q.—Did you in the latter part of May, or early part of June 1937, receive a letter purporting to be signed by Dr. J. Russell Verbyrck, Jr.?

A.—I recall such a letter.

Q.—I show you exhibit No. U. S. 11 for identification and ask you whether this is the letter which you received, purporting to come from Dr. Verbyrck.

A.—That is the letter.

Mr. Kelleher:—I offer Exhibit 11 for identification in evidence, (handing letter to Mr. Leahy).

"Mr. W. F. Penniman,
1869 Wyoming Avenue,
Washington, D. C.

May 29, 1937.

"Dear Mr. Penniman:

"Group Health Association, Inc. has been brought to the attention of the Medical Society of the District of Columbia. The Medical Society has had a part in the formation of the present beneficent organizations such as Group Hospitalization, the Central Admitting Bureau, and the Physicians and Dentists Service Bureau, and the approval and help of the Society has been a vital factor in the success of these organizations.

"May I ask, since your organization so deeply affects health problems in the city, if you will be good enough to submit a copy of your charter and by-laws, with a copy of the contract with your members?

"Thanking you for your cooperation, I am,

"Very truly yours,

"J. Russell Verbyrck

"Chairman of Committee on Economics,

"Medical Society of the District of Columbia."

By Mr. Kelleher:

Q.—What was your discussion with Dr. Verbyrck after you telephoned him about this letter?

A.—The letter, as you read it, asks for a copy of the by-laws, a copy of the contract, and charter, and in my discussion with Dr. Verbyrck over the telephone—and I purposely called him because I felt I could better explain to him over the telephone the details than I could in a letter—I explained to him that the by-laws of the Association had been distributed to the members, every member had one, and I thought he would have no difficulty in getting a copy of the by-laws. As to the matter of the charter, it was a public record; he could get that without any trouble, but the contract, which I understood he wished to have, I told him I was without authority to give him that.

Q.—On June 24, 1937 did you attend a meeting of the executive committee of the Medical Society of the District of Columbia?

A.—Yes.

Q.—Who attended with you for G. H. A.?

A.—Dr. Brown and Mr. Zimmerman.

Q.—Do you recall who presided at the meeting?

A.—My recollection is Dr. Conklin presided; I think he was the one; I am not sure about that.

Q.—Can you tell us who was present at the meeting in addition to you, Mr. Zimmerman, Dr. Brown, and Dr. Conklin?

A.—There were quite a group. I doubt if I could recall the names of them. I met a great many just at that meeting that evening.

(On inquiry the witness included also Drs. J. L. Thompson, F. X. McGovern, William M. Sprigg, Verbyrck, R. Arthur Hooe, H. C. Macatee, Thomas E. Neill, Sterling Ruffin.)

Q.—Anybody else who you can recall?

A.—Yes, I think there was one whose name I can't recall now; he was identified as an x-ray specialist.

Q.—Dr. Groover, now deceased?

A.—Yes, that is his name; Dr. Groover was there.

Q.—Now will you tell us what occurred at that meeting?

A.—Well, as I recall it, the meeting was designed primarily to acquaint the District Medical Society with our purposes, and what we were aiming to do.

Q.—Whose purposes?

A.—Group Health Association. We wanted them to have full information concerning it; and the primary purpose was to solicit the aid of the District Medical Society in helping us to get organized with the proper medical staff, et cetera. We wanted them to know as much about it as we could.

The witness stated he addressed the meeting, also Dr. Brown and Mr. Zimmerman.

Q.—Did any of the doctors have anything to say?

A.—I think there were some questions asked and we endeavored to answer them.

Q.—Who asked the questions?

A.—I remember Dr. Hooe, and Dr. Groover, asked some.

Q.—Dr. McGovern?

A.—I think so; I am not sure.

Q.—When you say "asked questions" do you mean about Group Health Association?

A.—Yes, and we answered them to the best of our ability.

Q.—Did Dr. Conklin, too, to the best of your recollection?

A.—Yes.

Q.—Dr. Neill?

A.—I don't recall that Dr. Neill did.

Q.—Now you have already testified that Dr. J. Lawn Thompson was present at the meeting. Did you, subsequent to the meeting, talk with Dr. J. Lawn Thompson?

A.—Yes, Dr. Thompson visited me in my office; or came by to see me and said he wanted to talk with me.

Q.—How long after the meeting was this visit of his?

A.—I should say within ten days or two weeks, not very long.

Q.—Ten days or two weeks?

A.—Yes, and he said he wanted to talk with me about Group Health; that he was very much concerned.

Mr. Leahy (interposing):—I object to the conversation of Dr. Thompson outside the presence of the defendants.

(Counsel for all parties approached the bench.)

By Mr. Kelleher:

Q.—Mr. Penniman, in July, 1937, did you receive a letter which purported to be signed by Dr. F. X. McGovern?

A.—Yes, I did receive such a letter

Q.—Did you telephone Dr. McGovern and discuss that letter?

A.—Yes.

Q.—I show you U. S. Exhibit 12 for identification and ask you if this is the letter purporting to be signed by Dr. McGovern that you received.

A.—Yes, it is.

Mr. Kelleher:—I offer Exhibit No. 12 for identification in evidence.

Mr. Leahy:—No objection, your Honor.

(Letter July 15, 1937, McGovern to Penniman, previously marked U. S. Exhibit 12 for identification, was received in evidence.)

Mr. Kelleher:—The letter is as follows: (Reading.)

"The Medical Society of the District of Columbia,

"1835 I Street, Northwest,

"Washington, D. C.

"July 15, 1937.

"Mr. W. F. Penniman, President,
Group Health Association, Inc.,
Home Owners' Loan Corporation,
Washington, D. C.

"Dear Mr. Penniman:

"At the recent meeting held in the Medical Society Building, when you, Mr. Zimmerman and Dr. Brown were present and discussed with us the plans and purposes of your organization, you were kind enough to say that your board of trustees would receive a committee from the Society for further discussion on the problem.

"The committee of the Society having this matter in charge finds itself unready to discuss the matter intelligently with you without further explanation. I am therefore requested to request, and I do respectfully ask, that you furnish me with copies of (a) your contract with Home Owners' Loan Corporation; (b) your adopted constitution and by-laws;

(c) your form or forms of application; and (d) any form of contract or agreement setting forth the service to be rendered to members and their dependents.

"Thanking you, I am

"Very truly yours,

"F. X. McGovern, M.D.

"Chairman, Subcommittee of Executive Committee."

By Mr. Kelleher:

(Mr. Perriman again described the luncheon with Dr. McGovern and Mr. Zimmerman at the Raleigh Hotel.)

A.—It was a very pleasant affair. We talked about a good many things, with particular reference to his request that we give him the documents which he had asked for. I told him that the matter of securing the charter was not a difficult thing; that it was a public record. I also told him we could not give him the contract. We talked pretty much during the lunch hour on general subjects.

Q.—Did Dr. McGovern tell you why he wanted these documents?

A.—He did in his letter.

Q.—Did you attend a meeting on July 26, 1937 with certain representatives of the Medical Society?

A.—Yes.

(Mr. Penniman described the meeting in the board room of the Federal Loan Bank.)

Q.—What was the nature of the discussions at this meeting?

A.—They had promised or asked if we would receive a committee. We said, "Of course, we would be delighted to have them," and it was a continuation of the previous discussion; and I think Dr. Macatee took the lead, and we went into considerable detail about this type of practice. Dr. Groover took a part in which he spoke of the type of this practice in other countries. It was a pretty general discussion. I took the general impression from the meeting that they would like to have us carry on with the Association but let their doctors do the practicing.

Q.—What did they propose that the Association would do?

A.—We were to have the membership; we were to collect the membership fees; to act as a kind of collection agency; we were to collect dues and when the members were sick they were to be attended by the local doctors.

Q.—Now, Mr. Penniman, you told us Dr. Brown was appointed as medical director. What were his first duties as director?

A.—Well, they started off as a combination of duties. The first thing was to try and organize his staff, and while doing that, to arrange for the purchase of the equipment; and he assisted in the location of space, adequate space.

Q.—Who determined what equipment the clinic should have?

A.—Dr. Brown.

Q.—Will you describe the next duty of Dr. Brown after he had located the clinic and determined upon the equipment of the clinic, that the clinic needed?

A.—He was busily engaged in selecting a staff.

Q.—Will you describe the procedure which he followed in obtaining a staff?

A.—Well, I don't know that I can give it to you exactly, because we depended on him to get the staff. He, being a medical man, had his own way. He did write, and contacted some doctors; wrote to several doctors, did the investigating of their qualifications pretty thoroughly and when he arrived at the conclusion that a person contacted did have the necessary qualifications the question was brought to the board with respect to the salary to be paid the individual.

Q.—Did Dr. Brown make any recommendation as to salaries?

A.—Yes, he did.

Q.—And did the board of trustees accept his recommendations?

A.—They did.

Q.—Who was the first doctor that Dr. Brown obtained for G. H. A.?

A.—Dr. Raymond E. Selders.

Q.—Did the doctor, that is, Dr. Brown, did he select Dr. Selders?

A.—Yes.

Q.—And did Dr. Brown recommend the salary which should be paid Dr. Selders?

A.—Yes.

Q.—What action did the board of trustees take on his recommendation?

A.—Approved it.

Q.—What other doctors were obtained by Dr. Brown prior to the opening of the clinic?

A.—I am not sure that I can give them to you in the exact order in which they were selected, but Dr. Allan E. Lee was

selected by Dr. Brown and Dr. Scandifio was selected by Dr. Brown. There was a Dr. Hulbert selected by Dr. Brown. The nurses on the staff were selected by Dr. Brown.

Q.—In what field is Dr. Allan E. Lee?

A.—He was a general internist.

Q.—What is that?

A.—Engaged in the general practice of medicine.

Q.—And in what field was Dr. Scandifio?

A.—He was a pediatrician.

Q.—What is that?

A.—A baby doctor.

Q.—When did the clinic of G. H. A. open?

A.—Officially in Nov. 1, 1937.

Q.—What occurred on the evening prior to the opening of the clinic?

A.—Well, we had a dinner at the Mayflower Hotel.

Q.—That is here in Washington?

A.—Yes.

Mr. Leahy:—I don't like to object but I can't see the materiality of that.

THE COURT:—I can't see the materiality of all these details, in connection with the opening of the Group clinic.

Mr. Kelleher:—I propose to show the materiality by subsequent questions to the witness. I think this is most important, your Honor.

THE COURT:—Will counsel step to the bench?

(Counsel for both sides approached the bench and conferred with the Court, in a low tone of voice.)

By Mr. Kelleher:

Q.—Whom did you mean?

A.—The board of trustees sponsored the dinner.

Q.—Of G. H. A.?

A.—Yes.

Q.—Did Dr. Richard Cabot address the meeting?

A.—Not at the dinner; it was at a later meeting, a separate meeting that he did.

Q.—Who is Dr. Richard Cabot?

A.—He is a very prominent physician from Boston, Mass.

Q.—Is he related to Dr. Hugh Cabot?

A.—Yes, I think so.

Q.—A brother?

A.—Yes.

Q.—Did you invite any of the local doctors to that dinner?

A.—Yes.

Q.—Will you tell us whom you invited?

A.—We invited a number of them, as I recall.

THE COURT:—May I suggest that you merely ask the witness as to the specific persons.

(Mr. Kelleher then asked the physicians specifically invited.)

Mr. Kelleher:—I offer Exhibit 13 for identification in evidence (handing letter to Mr. Leahy).

(Exhibit 13 for identification, Mary G. Lynch to W. F. Penniman, dated Oct. 26, 1937, was received in evidence.)

Mr. Kelleher:—The letter is as follows:

"DR. THOMAS E. NEILL
"1824 Massachusetts Avenue,
"Washington, D. C.

"October 26, 1937.

"Mr. William F. Penniman,
Group Health Association, Inc.,
1328 I Street, Northwest,
Washington, D. C.

"My dear Mr. Penniman:

"Dr. Neill will be unable to attend the dinner at the Mayflower Hotel on October 30, 1937, and has asked me to let you know.

"Very truly yours,

"Mary G. Lynch,

"Secretary to Dr. Neill."

By Mr. Kelleher:

Q.—Mr. Penniman, did you invite the hospitals' representatives to that meeting?

A.—Yes, I think we sent invitations to all the hospital superintendents; the superintendents of all the hospitals.

Q.—Who attended?

A.—Colonel Randall was the only one, I remember.

Q.—With what hospital was he connected?

A.—With the Homeopathic.

Q.—Do you recall whether any of the other hospitals were represented?

A.—I don't recall that any others were there.

Q.—Mr. Penniman, after the clinic had opened on November 1, did Dr. Lee and Dr. Scandifio tender their resignations to the Medical Society?

A.—Yes.

ORGANIZATION SECTION

JOUR. A. M. A.
FEB. 22, 1941

Q.—Did you have a conversation with Mr. B. B. Sandidge, of the Emergency Hospital, concerning this matter?

A.—I did.

Q.—Who is Mr. Sandidge?

A.—He is the superintendent of the Emergency Hospital.

Q.—Can you place the date of that conversation?

A.—That was shortly after the clinic opened. It must have been around the 10th of November, 1937, around that neighborhood.

Q.—Did you call Dr. Sandidge?

A.—Yes.

Q.—Will you tell us what you told Dr. Sandidge, or Mr. Sandidge?

Mr. Leahy.—I object.

Mr. Kelleher.—On what grounds?

Mr. Leahy.—Pure hearsay.

Mr. Lewin.—Your Honor knows our position with regard to the hospitals; that they were forced into this conspiracy by the defendants.

THE COURT.—Yes, but why reach it by hearsay; why not get it from them?

Mr. Lewin.—We are entitled to get it from someone who came into the conspiracy.

THE COURT.—That is the same question again. I suggest you defer that evidence for the moment, until I rule tomorrow on the question.

Mr. Kelleher.—Your Honor, may I call attention to the fact that the indictment does name the hospitals.

THE COURT.—I understand that; I am quite familiar with the indictment. Let us pass that up until tomorrow morning when I will rule on it.

By Mr. Kelleher:

Q.—All right. Now, did you have a meeting with Dr. Neill in November, 1937?

A.—Yes.

Q.—That is Dr. Thomas E. Neill?

A.—Yes.

Q.—Can you place the date of that?

A.—The latter part of November, about the 25th, 26th, 27th, I think, of November.

Q.—Where was this meeting?

A.—At his office.

Q.—And who was in attendance, in addition to Dr. Neill and yourself?

A.—Mr. Horace Russell.

Q.—Who is Mr. Horace Russell?

A.—He was a member of the board of trustees.

Q.—Of G. H. A.?

A.—Yes.

Q.—Who else?

A.—Mr. Ivan Carson; Mr. R. T. Berry; W. D. Kirkpatrick, Mr. Zimmerman.

Q.—Will you tell the jury the substance of the conversations at that meeting with Dr. Neill?

A.—We called upon Dr. Neill—

Q.—Just a second: I want you only to state the matters you told Dr. Neill and what he said to you.

A.—I told Dr. Neill of the incident that had occurred at the Garfield Hospital, which we thought was pretty terrible; that I had come to talk with him because he was the president of the District Medical Society, and we felt very definitely that he should know about this situation.

Q.—Did you tell him what this situation was?

A.—Yes.

Q.—What did you tell him?

A.—We told him that this patient had been carried to Garfield in a very serious condition.

Q.—Did you tell him the name of the patient?

A.—Yes, I did.

Q.—What was it?

A.—Mary Frances Stuart.

Q.—Who was she?

A.—The laboratorian of Group Health Association. She had been found unconscious in her home and was hurried to Garfield Hospital where it was found that she needed an emergency operation. I told him that while she was in the room waiting there that they had a debate in the corridor of Garfield as to whether or not any doctor could attend her and when while she was in that condition one doctor made the statement that he couldn't attend this person—he said that in a loud voice—if she was connected in any way with Group Health Association. Dr. Lee, whose patient she was, found out that nothing had been done there, and he told the Group that he was on the courtesy staff of Garfield and he entered her as his patient, and she was operated on. I told Dr. Neill what I

thought of such a situation and that I thought the patient should have received better treatment because it was an emergency situation, where time was the essence.

Q.—What did Dr. Neill say?

A.—Dr. Neill said he didn't know anything about it. I don't recall that Dr. Neill gave us any encouragement, because he launched off into another subject, and made the statement to me that if all the members of the Supreme Court and all the members of Congress, if you were to put them all in one room, they couldn't competently select a doctor. I was thereupon forced to reply, "If that is true, Dr. Neill, how in the name of God can a poor layman select the right kind of doctor?"

Q.—Did Dr. Neill know, or did you tell Dr. Neill who the doctor was that was involved in the Mary Stuart case?

A.—Yes.

Q.—What was his name?

A.—Dr. Schoenfeld.

Q.—Now, Mr. Penniman, did you write a letter to Dr. Neill concerning this conference?

A.—Yes.

Q.—And did you receive a reply from Dr. Neill?

A.—I did, yes.

Q.—I show you Government Exhibit No. 13 for identification, which purports to be the original of a letter from you to Dr. Thomas E. Neill, dated Nov. 22, 1937: Does that letter appear to bear your signature?

A.—That is correct; it does.

Q.—Did you mail this letter?

A.—I did.

Q.—I now show you Government's Exhibit No. 14 for identification, which purports to be a letter from Dr. Thomas E. Neill to you, dated Nov. 24, 1937. Is this the letter which you received, and I am referring now to Exhibit 14 for identification, in evidence.

A.—That is right.

Mr. Kelleher.—I offer Government's Exhibits 13 and 14 for identification, in evidence.

(Mr. Kelleher read letters to the jury, as follows):

"Group Health Association, Incorporated,
"1328 Eye Street, N. W.,
"Washington, D. C.
"November 22, 1937.
"Person.
"Dr. Thomas E. Neill, President,
"Medical Society of the District of Columbia,
"1824 Massachusetts Avenue,
"Washington, D. C.

"Dear Dr.:
"It was good of you to give so generously of your time to the representatives of the Group Health Association, when they called on you at your office on Saturday afternoon.
"It has been my experience that when a group of men are gathered to discuss any subject, varying opinions as to what was said often-times result, notwithstanding the sincerity of all present. Wishing to avoid this in this instance, I have deemed it advisable to confirm in substance the highlights of our discussion as understood by us, as follows:

"1. That the hospitals are maintained for the patient and not for the doctor, therefore, no hospital is justified in refusing admission to any patient in need of hospital care, regardless of race, color or creed, or membership in any association.
"2. That there are at present some 400 doctors, licensed to practice in the District of Columbia, who are not members of the Medical Society of the District of Columbia, some of whom are on the courtesy staff of local hospitals. This confirms our opinion that membership in the District Medical Society by a licensed physician is not a condition precedent to being accepted and placed on the courtesy list of the local hospitals.

"3. That consideration of the applications of duly licensed physicians applying to any of the local hospitals for courtesy privileges is based upon merit and competence of the physician making the application.
"4. That to falsely charge a physician with incompetence subjects the accuser or accusers to suit for libel. This statement was made in connection with your reference to one of our doctors, but whose name you did not wish to disclose.

"Dr. Raymond E. Selders' application for courtesy privileges has been submitted to several of the local hospitals.
"A careful and thorough investigation of Dr. Selders' qualifications was made before his acceptance as a Member of the Medical Staff of the Group Health Association. This included a careful review of his education, and his years of experience. We have checked his record from Texas to Massachusetts and have unqualified statements from physicians with whom he has worked, and in whose integrity we have implicit confidence.

"Both as President of the Medical Society of the District of Columbia and a prominent physician of long standing in this community, it is we think very proper that you should be thoroughly conversant with every activity, the purpose of which is to give medical care, to the end that the highest standard of ethics of the medical profession may be maintained.

"For this reason, we are delighted to have had this talk with you. I also wish to confirm our understanding that what was said by you to us was in confidence and in nowise intended for purposes of publication.

"Sincerely yours,
"William F. Penniman,
"President."

"The Medical Society of the District of Columbia.

"Washington.

"November 24, 1937.

"Mr. Wm. F. Penniman,
President, Group Health Association Inc.,
1328 I Street, N. W.,
Washington, D. C.

"My Dear Mr. Penniman:

"Thank you for your letter of November 22nd.

"I was very glad to have the opportunity of putting a few facts before the group of men that came to my office with you on Saturday. I think a full understanding of what we must adhere to by you and your committee will save a great deal of unpleasantness in the future.

"I shall be very glad to discuss in person with you any point, under the same conditions.

"I wish to thank you and through you the rest of the men present for the very frank way they expressed their opinions.

"With kind regards.

"Very sincerely yours,
Thomas E. Neill."

By Mr. Kelleher:

Q.—Mr. Penniman, I would like to clear up one thing about the conference with Dr. Neill. Did you tell Dr. Neill how Dr. Schoenfeld happened to get into the Mary Frances Stuart case?

A.—Would you repeat the question?

Mr. Kelleher:—Would you read the question?

(The pending question, as above recorded, was read by the reporter.)

Mr. Leahy:—Would that be material, based wholly on hearsay? Anything he said to Dr. Neill wouldn't be admissible.

Mr. Kelleher:—He went into everything this morning.

THE COURT:—It is just a part of a conversation that is already in.

By Mr. Kelleher:

Q.—Do you understand my question?

A.—Yes. I told Dr. Neill Dr. Schoenfeld was the surgeon who was going to perform the operation and told him Dr. Schoenfeld was ready, but he was the one who made the statement he couldn't do it if she was connected with Group Health Association.

Q.—Did you tell him who had requested Dr. Schoenfeld to operate?

A.—Yes, I told him that Dr. Lee was a member of Garfield Hospital, was on the courtesy staff, and that he and the medical director had arranged for it.

Q.—Did you tell Dr. Neill why Dr. Lee did not himself perform the operation?

A.—Well, I presume I did, because I could very easily have said in the course of this general conversation that Dr. Lee was not a surgeon.

Q.—Why didn't Dr. Selders perform the operation?

A.—Dr. Selders wasn't—

THE COURT:—The question is what the conversation was.

THE WITNESS:—I told him that Dr. Selders had not been admitted to the courtesy staff of the hospital and had gotten Dr. Schoenfeld to do it.

By Mr. Kelleher:

Q.—Did you explain to Dr. Neill who Dr. Schoenfeld was?

A.—Yes.

Q.—What did you tell him?

A.—I told him he was a member of the courtesy staff and was a member of the District Medical Society and that he had called him to perform this operation.

Q.—Mr. Penniman, after Dr. Lee and Dr. Scandiffio had submitted their resignations to the local society, did they take any other action in that regard?

A.—Yes, they—after Dr. Lee had been notified that he was no longer a member—

Mr. Leahy:—I object. Hearsay.

By Mr. Kelleher:

Q.—Would you just tell what those gentlemen did?

A.—They withdrew their resignations.

Q.—They did?

A.—Withdrew it from the District Medical Society.

Q.—Did you attend a hearing of the executive committee of the Medical Society of the District of Columbia on Dec. 6, 1937?

A.—I did.

Q.—What was the purpose of that hearing?

A.—That was the hearing that had been given Dr. Scandiffio and Dr. Lee on charges preferred against them by this C. C. and I. M. Committee of the Medical Society, and they were given the right to this hearing before being expelled from the society.

Q.—And what were the charges against Dr. Lee and Dr. Scandiffio?

Mr. Leahy:—I object. The writing would be the best evidence.

THE COURT:—Yes. I think that is true. If there is a record, I mean, if there are formal charges, they are the best evidence.

By Mr. Kelleher:

Q.—Who was present at this meeting on December 10?

Mr. Leahy:—Tenth or sixth?

Mr. Kelleher:—Excuse me. Thank you, Mr. Leahy.

By Mr. Kelleher:

Q.—December 6?

A.—December 6. Those, I presume, are members of the executive committee of the District Medical Society.

Q.—Will you give us the names of those you recall who were there? Let us go over the list of names.

Mr. Leahy:—Let him tell first.

THE WITNESS:—Well, it was Dr. Reede who served as chairman, I think.

(Mr. Penniman listed the names of those who were present.)

A.—Well, there were three attorneys, Mr. Fenning, Mr. Hoover, and Mr. Leahy, the gentleman over there (indicating).

Q.—Whom did they appear for?

A.—Well, I imagine they represented the District Medical Society.

Then there was Dr. Scandiffio and there was Dr. Lee.

I was there; Mr. Zimmerman, Dr. Brown; there was Mr. Luke Keeley, Mr. Horace Russell, Mr. E. K. Newman.

Q.—Mr. York?

A.—And A. S. York, yes, sir.

Q.—Who appeared as counsel for Drs. Lee and Scandiffio?

A.—Russell, Keeley, Newman and York.

Q.—What occurred at this meeting on December 6? Did anybody testify?

A.—I think Dr. Lee was on the witness chair most of that meeting.

Q.—And was he examined by counsel for the Society?

A.—Yes.

Q.—Were the hearings transcribed by a reporter?

A.—Yes.

Q.—How long did the first session last?

A.—I think until—it started about 8 o'clock and I think it adjourned about 11:30.

Q.—Before adjournment was a date set for another hearing?

A.—Yes. They set—I think that was Monday, and I think they set the following date for Friday the 10th, December 10.

Q.—Yes. Now, you have told us that Dr. Lee testified at this hearing. Did you see Dr. Lee early in the week of the first hearing?

A.—Subsequent to the first hearing?

Q.—Yes.

A.—Yes, Dr. Lee was in my office.

Q.—Will you describe his appearance, please?

Mr. Leahy:—I object as immaterial.

THE COURT:—Objection sustained.

By Mr. Kelleher:

Q.—Did you talk with Dr. Lee?

A.—Yes. Yes, I did. At length. Dr. Lee was quite perturbed.

Mr. Leahy:—You answer the question.

THE COURT:—Just answer the question.

By Mr. Kelleher:

Q.—Did you talk to him about the expulsion proceedings?

Mr. Leahy:—I object as immaterial.

THE COURT:—Sustained.

Mr. Kelleher:—Your Honor, this is offered on the same ground as this other conversation which your Honor is considering. I suppose you will reserve your final ruling?

Mr. Leahy:—This isn't on the same ground at all.

Mr. Keller:—Yes, it is.

Mr. Leahy:—You now want to make Dr. Lee a defendant. You will have the jury in it pretty soon.

Mr. Levin:—I don't think that is a proper expression.

Mr. Leahy:—Any counsel who has tried five cases ought to know it is absolutely inadmissible on the ground of hearsay.

THE COURT:—I sustained the objection, so I don't see what the argument is about.

Mr. Leahy:—I don't either.

THE COURT:—These personal tilts before me don't convince me one way or the other as to the admissibility of evidence. They are not very helpful.

By Mr. Kelleher:

Q.—Did you see Dr. Lee later in the week?

Mr. Leahy:—I object as immaterial.

Mr. Kelleher:—I am just asking him whether he saw him.

THE COURT:—Well, it is immaterial. Objection sustained.

Mr. Kelleher:—Your Honor, I do believe the second meeting may be admissible for another reason, if I could pursue the inquiry with Dr. Lee and the witness.

THE COURT:—Well, if counsel want to object, perhaps you had better come to the bench. I will be glad to listen to you.

By Mr. Kelleher:

Q.—Mr. Penniman, did you see Dr. Allan E. Lee on the afternoon of Friday, December 10?

A.—Yes.

Q.—Did Dr. Allan E. Lee make a telephone call in your office?

A.—Yes.

Q.—Did you hear him make that call?

A.—I did.

Q.—Whom did he call?

A.—Dr. Hooe.

Q.—Is that Dr. R. Arthur Hooe?

A.—That is correct.

Q.—Did you attend a meeting of the executive committee of the District Medical Society that evening?

A.—I did.

Q.—When you came into the building where the meeting was being held, did you see Dr. Lee talking with anybody?

A.—I saw Dr. Lee in the corridor.

Q.—With whom was he talking?

A.—Dr. Hooe.

Q.—Did you watch Dr. Lee talking with Dr. Hooe?

A.—Well, I observed it. I made no attempt to listen to what was said. I observed that the two were talking.

Q.—You didn't hear the conversation?

A.—No, I did not.

Q.—What occurred after the conversation between Dr. Lee and Dr. Hooe?

A.—Dr. Hooe went back in some little office right off the corridor, and shortly thereafter asked Dr. Lee to come in the room.

Q.—Did you see Dr. Hooe come back out of the room?

A.—Yes.

Q.—Did he beckon Dr. Lee to come in?

A.—Told Dr. Lee to come in, and he followed.

Q.—After you saw Dr. Lee go into the room with Dr. Hooe what occurred?

A.—He shut the door.

(There was laughter in the courtroom.)

THE COURT:—Now, possibly some of you haven't been here before, but those in the audience please understand, I think it better not to laugh. Suppress your feelings, please.

By Mr. Kelleher:

Q.—Did the executive committee meeting commence after that?

A.—Yes.

Q.—What occurred at the start of the meeting?

A.—Dr. Hooe, as I recall it, made the statement to the chairman of the executive committee that Dr. Allan E. Lee, having now tendered his resignation to Group Health Association, the C. C. and I. M. Committee recommended withdrawal of the charges, and I think it was put to a vote of the executive committee and they voted to withdraw the charges and reinstate Dr. Lee.

Q.—Who made this statement to the executive committee?

A.—Dr. Hooe was chairman of the C. C. and I. M. Committee.

Q.—Yes, but who announced this to the executive committee?

A.—I don't recall just who did it. I was present, I heard it made, heard the statement made.

Q.—What occurred at the second meeting?

A.—They—I think the second meeting they put Dr. Scandiffio on the stand.

Q.—When did you testify?

A.—I think mine was the third.

Q.—When was the third meeting held?

A.—Well, that was—the following week—sometime during the following week. This being Friday the 10th—I don't remember the exact date.

Q.—Did Dr. Brown testify at any of these hearings?

A.—Yes. Yes, he did.

Q.—Did you attend any other hearing of the executive committee after the third hearing?

A.—No. I was out of the city.

Q.—Mr. Penniman, did you write and mail any communications to any of the Washington hospitals concerning staff privileges for the medical staff of G. H. A. or any of its members?

A.—Yes.

Q.—Did you address a communication to the president of Homeopathic Hospital?

A.—Yes.

Mr. Kelleher:—Will you mark this for identification?

(A letter dated Nov. 8, 1937, from William F. Penniman to Col. Joseph Randall, was marked Government Exhibit 15 for identification.)

Mr. Kelleher:—And this.

(A letter from J. B. Gregg Custis to William F. Penniman, dated Nov. 9, 1937, was marked Government Exhibit 16 for identification.)

By Mr. Kelleher:

Q.—I show you here Government Exhibit 15 for identification, which purports to be a carbon copy of a letter from you to Col. Joseph Randall, President of the Board of Trustees, Homeopathic Hospital, dated Nov. 8, 1937. Is this a carbon copy of an original letter which was written and mailed by you?

A.—That's right.

Q.—Did you receive a reply to that letter of Nov. 8, 1937?

A.—Yes.

Q.—Is this the reply which you received (indicating)?

A.—Yes.

Mr. Kelleher:—I offer Government's Exhibits 15 and 16 for identification, in evidence.

(Counsel examined paper.)

Mr. Burke:—Exhibit 15 is a carbon copy dated Nov. 8, 1937.

Exhibit 16, an original letter dated Nov. 9, 1937 from J. B. Gregg Custis, M. C., Executive Officer, Board of Trustees, National Homeopathic Hospital, to Mr. Penniman.

Mr. Leahy:—Show that to the Court.

May we just approach the bench for a moment, your Honor?

THE COURT:—Yes.

Mr. Kelleher (reading):

"November 8, 1937.

"Col. Joseph Randall, President,
Board of Trustees,
Homeopathic Hospital,
3146 19th Street, N. W.,
Washington, D. C.

"Dear Col. Randall:

"For your information, I am attaching hereto a copy of a letter addressed to the Homeopathic Hospital requesting permission to admit patients who are members of the Group Health Association to the hospital upon the request of the Medical Director.

"Also, a request to permit Dr. Raymond E. Selders, Surgeon, who is attached to the staff of the Group Health Association, to attend these patients while hospitalized.

"For your further information, there is attached a record of Dr. Selders' education, training and experience.

"Your assistance in obtaining prompt and favorable action will be very much appreciated.

"Very truly yours,
William F. Penniman,
President."

"Mr. William F. Penniman,
Group Health Association, Inc.,
1328 Eye Street, N. W.,
Washington, D. C."

It is on the letterhead of the National Homeopathic Hospital. (Reading.)

"My dear Mr. Penniman:

"At a Board of Trustees Meeting held on November 4, 1937, it was voted that until the Group Health Association, Inc. was approved by the Medical Society of the District of Columbia, the National Homeopathic Hospital could not make any contract or enter into any agreement with it.

"Very truly yours,

(signed) J. B. Gregg Custis, M.D.,
Executive Officer, Board of Trustees."

By Mr. Kelleher:

Q.—Mr. Penniman, in writing to these hospitals did you intend to take any arrogant attitude toward the hospital?

Mr. Leahy:—I object.

THE COURT:—Objection sustained.

By Mr. Kelleher:

Q.—Mr. Penniman, did you, as you state in this letter, also address a letter to the National Homeopathic Hospital?

A.—Yes, sir.

(Mr. Penniman stated he had addressed letters to all the hospitals.)

(Original letters and copies of letters from Penniman to various hospitals and officers of various hospitals were marked U. S. Exhibits Nos. 17 to 29, inclusive, for identification.)

Mr. Kelleher:—Your Honor, I am now through with the matters that your Honor will permit us to go into at this time, but I would like to reserve the right to recall Mr. Penniman.

THE COURT:—Yes. That may be done.

Mr. Kelleher:—That is all, Mr. Leahy.

Mr. Leahy:—May I ask one of the Deputy Marshals to telephone the reporters' office to return certain exhibits that were removed from the court room?

THE COURT:—Yes.

CROSS EXAMINATION

By Mr. Leahy:

(Mr. Penniman went over again the record of his various positions.)

(He was interrogated as to his relationship with Mr. Zimmerman and various conferences that were held.)

Q.—What was the occasion of your first seeing any member of the District Medical Society with reference to G. H. A.?

A.—At the time we visited them at the Society's headquarters.

Q.—That was sometime following the receipt of this letter from Dr. Verbrycke, was it not?

A.—I think it was.

Q.—At the time you received this letter you were president, were you not, of G. H. A.?

A.—That is correct.

Q.—Had you as president of G. H. A. attempted to contact the Medical Society of the District of Columbia in any way before the receipt of this letter?

A.—Not officially; no.

Q.—Unofficially?

A.—No.

Q.—In no way had you tried?

Mr. Lewin:—He told you about the Neill visit. It is confusing. The questions have got to be based on the evidence. This gentleman has already testified that he went to see Dr. Neill at Mr. Childress's home before this meeting.

THE COURT:—That evidence is there.

Mr. Lewin:—Yes; but now the question is phrased on an entirely different supposition, which is not correct.

THE COURT:—He has a right to phrase it on a different supposition.

Mr. Lewin:—He cannot misquote the evidence, can he?

THE COURT:—I do not know that he is misquoting it. If the witness misunderstands the question, then it can be clarified on direct examination. I think that is the better way.

By Mr. Leahy:

Q.—Will you answer the question?

A.—The last question I do not get. You said, "Unofficially?" and I said, "No." Not the District of Columbia Medical Society; no.

Q.—Had you contacted anybody who was officially connected with the District Medical Society, before the receipt of this letter?

A.—I think so. I think I had an interview with Dr. Neill. He was connected with the District Medical Society.

Q.—Can you tell us the date of that visit?

A.—As near as I can recall, sir, it was in April or May; I am not sure.

Q.—Did you make any memorandum of that visit?

A.—I don't think so; no. It was a very informal visit at Mr. Childress's home, and we just had an informal discussion with Dr. Neill.

Q.—Mr. Childress was the assistant to Mr. John H. Fahey, Chairman of the Board, was he not?

A.—That is correct.

Q.—And he was interested also in Group Health Association?

A.—He was interested; and Dr. Neill was quite a close personal friend of his. He offered that as a suggestion.

Q.—Had you ever met Dr. Neill personally before that occasion?

A.—I don't believe I had.

Q.—Had you discussed him with Mr. Childress?

A.—Oh, yes.

Q.—It was at Mr. Childress's suggestion, then, that you went up to see Dr. Neill?

A.—It was at Mr. Childress's suggestion that Dr. Neill met us at his home.

Q.—Group Health had been incorporated on Feb. 24, 1937, had it not?

A.—I think so; yes.

Q.—Had its by-laws been published shortly after that time?

A.—Yes.

Q.—Those by-laws purport in a general way to determine the contract between the subscriber to the service and the service which Group Health rendered? Is that right?

Mr. Lewin:—We have the by-laws in evidence.

By Mr. Leahy:

Q.—Had they been printed shortly after the incorporation?

A.—Yes.

Q.—Many copies printed?

A.—Yes; we had quite a number of them.

Q.—You had distributed them, had you not, among the membership?

A.—With the membership; yes.

Q.—Do you recall about how many you had distributed?

A.—Our membership at that time was around 900, and I think each one had a copy of the by-laws.

Q.—When Mr. Childress asked you to meet Dr. Neill at his home that night did you know that you were going at that time to discuss with Dr. Neill the possibility of his being asked to become the Medical Director of Group Health?

A.—Oh, absolutely. That was the purpose of the meeting.

Q.—Did you bring a copy of the by-laws with you?

A.—I don't remember whether we had them or not.

Q.—Did anyone in the group bring a copy of the by-laws?

A.—I don't recall.

Q.—Did any one of the group leave a copy of the by-laws with Dr. Neill so that he could read them?

A.—That I don't recall.

Q.—Did you not think, if you were going to see a person who was to be employed as Medical Director, you should give him the by-laws which constituted the contract for the service that was to be rendered?

A.—I feel that perhaps Dr. Neill should have asked for a copy of the by-laws. I don't recall that he did. If he were going to become the Medical Director he would have wanted to see a copy of the by-laws, I think.

Q.—Do you recall whether he asked for one now?

A.—I don't recall that he did.

Q.—But your best recollection is that no one left one with him?

A.—That is my best recollection.

(The witness was closely interrogated as to the details of the conversation with Dr. Neill.)

Q.—Did you indicate to him that you had the money available at that time to buy the equipment?

A.—No; I don't believe we did. I don't remember that particularly.

Q.—You already had the money, had you not?

A.—I am not sure just when the money was made available. I think the money was made available sometime in March of 1937. I cannot tell you whether it was just prior or subsequent to the availability of the money that I met with Dr. Neill.

Q.—At all events, nothing was said about that point, in accordance with your best recollection?

A.—No. I don't think the question was raised at all.

(The witness was questioned on the letter from Dr. Verbrycke.)

Q.—The Central Admitting Bureau? Did you know about that?

A.—I am not as familiar with that. I know there is a Central Admitting Bureau.

Q.—And the Physicians and Dentists Service Bureau?

A.—I don't know that at all.

Q.—(Reading):

"And the approval and help of the Society has been a vital factor in the success of these organizations." Did you know that the Medical Society had cooperated in the formation and continuation of those organizations?

A.—No; I did not.

Q.—(Reading):

"May I ask, since your association so deeply affects health problems in the city, that you will be good enough to submit a copy of your charter and by-laws with a copy of the contract with your members."

Did you ever submit a copy of the charter?

A.—No, sir.

Q.—Was that contained in the copy of your by-laws?

A.—No. That was explained to him over the telephone—that if he wanted the charter, that was a matter of public record. It had been filed, and he had no difficulty in seeing that.

Q.—Did you have a copy of your charter available?

A.—I did not. The secretary of the association may have had it. I personally did not.

Q.—You had available copies of the by-laws?

A.—Oh, yes. We had plenty of them.

Q.—You could have mailed him a copy of the by-laws in accordance with his request, could you not?

A.—Surely, without any trouble at all. I told him over the telephone, however, that there had been some nine hundred

copies distributed, and I thought he would have no difficulty. As a matter of fact, we had already heard that a number of the copies were already in the hands of the doctors.

Q.—Did you have any particular reason why you did not accede to the request of Dr. Verbrycke as chairman of the Committee on Economics of the Medical Society of the District of Columbia?

A.—None whatsoever, except that if I am not mistaken it was during the course of this conversation that we asked him to permit us to come over and talk to the District Medical Society. I am not so sure—it is a little vague, but I think it was in this telephone conversation that arrangements were made for representatives of Group Health to visit the District Medical Society and some of its members.

Q.—When you visited the District Medical Society in accordance with that arrangement, which you think may have been made over the telephone at that time, did you bring the by-laws with you then?

A.—I don't know that we had them.

Q.—Did anybody in your group bring the by-laws?

A.—I think they may have had a copy. It was just a small pamphlet.

Q.—But did you bring them?

A.—I did not purposely bring them; no.

Q.—Did Dr. Brown bring them?

A.—I could not answer that.

Q.—Did you see him give a copy to anybody at the meeting?

A.—No.

Q.—They were asking about a copy, were they not?

A.—Not at the meeting.

Q.—Were they not discussing the by-laws or the contract at that meeting?

A.—I don't think so. I think I made the first statement and gave a general outline, and I think that then there were some questions asked. I think Dr. Neill asked some questions with reference to the by-laws which I endeavored to answer to the best of my ability.

Q.—Was not the District Society, through the chairmen of some of its committees, trying to get a copy of those by-laws as late even as July 15?

A.—That is right.

Q.—Why didn't you supply them with a copy, Mr. Penniman?

A.—Because he could get all the copies he wanted.

Q.—He could go and get them himself? Was that the spirit?

A.—I don't know that that was intended to be the spirit; but the idea was that we felt they had plenty of them. They had some of the copies.

Q.—Did you supply them with a list of the members of G. H. A.?

A.—No.

Q.—But you would expect Dr. McGovern, who was writing to you on July 15—

A.—Did he ask for a list?

Q.—He asked for a list.

A.—For a list of the members?

Q.—No; he asked for a copy of your by-laws.

A.—But you said, a list of the members.

Q.—How would he know who was a member of the G. H. A.?

A.—He didn't ask for that.

Q.—Did you tell him?

A.—No.

Q.—You told him that you had distributed 900 copies of by-laws among 900 Government clerks, but you did not tell him what 900 out of the 100,000, did you?

A.—No, because we had heard that some of the doctors had them. We had gotten reports back that some of the doctors had them and had discussed it; so it was not anything that was secretive.

Q.—At all events, up to this time you have not supplied the District Medical Society with a copy of your by-laws?

A.—I have not, personally.

Q.—Have you ever supplied the District Medical Society with a copy of the contract?

A.—Just what contract do you refer to?

Q.—The contract with the Home Owners Loan Corporation which was asked for on July 15, under Exhibit 12.

A.—No, sir.

Q.—Have you ever supplied the District Medical Society with a copy of your adopted constitution?

A.—The by-laws?

Q.—Yes.

A.—No; I have not.

Q.—Have you ever supplied a copy of the form or forms of application for membership?

A.—No.

Q.—Have you ever supplied any form of contract or agreement setting forth the service to be rendered to members and their dependents?

A.—That would be all in the by-laws.

Q.—So your answer is that you have never supplied that information, either?

A.—I did not.

Q.—You will note under Exhibit 12 that Dr. McGovern was asking for the information in his official capacity as chairman of the executive committee. Is not that true?

A.—I think so.

Q.—And Dr. McGovern had written on the stationery of the Medical Society of the District of Columbia?

A.—That is right.

Q.—Whereas, in Exhibit No. 11, Dr. Verbrycke wrote on his personal stationery; nevertheless, he signed the request, did he not, in his official capacity as chairman of one of the committees?

A.—That is right.

(The witness was then closely interrogated on the conversation with Dr. Neill.)

Q.—Of course when you outlined the plan of G. H. A., that outline did not convey the information that it was a prepayment service?

A.—Oh, yes.

Q.—Did Dr. Neill object to the prepayment notion?

A.—There was no indication during the evening's conversation that he objected to it.

Q.—He advised you that he and his partner were engaged in some form of contract practice with the Potomac Electric Power Company?

A.—I am a little vague about that; either that he was or his partner was; but I am not sure just which it was. There was some reference to it.

Q.—With one or two organizations of contract practice in the District of Columbia?

A.—Yes.

Q.—Did he say anything to you in substance that you can recall to this effect, Mr. Penniman, that if the G. H. A. were economically sound, if it were ethically and legally sound, the job which you were offering him was just the job he was looking for?

A.—To the best of my recollection there was no question at that time brought up about the legality of Group Health. I don't believe that was in question at all.

Q.—Did he say anything to you in substance to the effect of the question which I have just put to you?

A.—Not with respect to legality, that I remember.

Q.—Did he say anything with reference to the ethical side of it?

A.—I cannot recall that he did. The remark that he made as he was leaving was that he had to leave because of some engagement—I think it was a patient—and that his further action would have to depend upon the attitude of the District Medical Society. I think that is about the last remark I remember his making. I don't remember his saying anything about legality or the ethics of it. He did say that he saw nothing wrong with it, and that there were other practices such as he was interested in.

Q.—Do you recall at the time that he left you with any indication that he would talk with you further about it?

A.—I think we got the impression that he would, because he said it would depend upon the attitude of the District Medical Society. Naturally he did call attention to the fact that he was becoming its president on July 1st.

Q.—Did you ever get in touch with him again about it?

A.—I don't know that I did.

Q.—Do you know anybody who did, representing the G. H. A.?

A.—No, I do not. I think we were waiting for a call from him.

Q.—Mr. Childress never spoke to you about the matter again, did he?

A.—He may have, in just general conversation, wanting to know what progress we were making.

(Mr. Penniman was questioned about the brochure issued by G. H. A., Inc. and the first meeting with the District Medical Society.)

Q.—So, at the outset you assured them that you wanted to give them full information about the organization?

A.—Yes.

Q.—Then why didn't you do it?

A.—We did, that evening. We discussed the by-laws. I gave them—so far as the charter is concerned, I did not give them that.

Q.—You did not give them the by-laws or the charter or the contract under which they were to function?

A.—There was no objection to giving them the by-laws or copy of the charter, if they did not already have it and if it were not obtainable. But so far as the contract that existed between Group Health Association and the Federal Home Loan Bank Board was concerned, I made it pretty clear that that was something we had no authority to give. That had to come from the Board itself.

Q.—Did you advise the Board that the District Medical Society would like to see a copy of the contract?

A.—I don't recall that I did, sir.

Q.—Did you make much effort to make good your assurance, which you gave the Executive Committee that night, that you wanted them to have full information about this matter?

A.—Just as I am giving full information now. I am trying to answer all the questions and go into as much detail with the purposes of the Association as is possible.

Q.—You knew all the answers were contained right within those by-laws?

A.—I knew the by-laws.

Q.—And you knew those answers were right inside those by-laws?

A.—Yes.

Q.—Then why did you not give them?

A.—They had the by-laws.

Q.—Did you see a copy of the by-laws at that meeting?

A.—No.

Q.—Why do you make the statement to the jury that they had a copy of the by-laws?

A.—Because we had gotten reports from several of the members that they had given copies to the doctors.

Q.—To whom?

A.—To local doctors here.

Q.—Can you say now to this jury that a single member of the Executive Committee whom you met there that night had ever had a copy of your by-laws?

A.—No; I could not, because I did not see them have it.

Q.—Even assuming that they had it, don't you think, in accordance with the assurance which you extended the Executive Board in the spirit of cooperation, that you ought to have given them a copy of the by-laws?

Mr. Lewin:—Your Honor, we think this has gone far enough, and we object.

THE COURT:—That is argumentative.

What is the next question, please.

By Mr. Leahy:

Q.—Mr. Penniman, there was quite a discussion back and forth there, was there not, about the possibility of Group Health economically succeeding on the dues which you stated?

A.—That evening?

Q.—Yes.

A.—That is correct.

Q.—And somebody there pulled out a piece of paper and started figuring on the table?

A.—I think they did; yes.

Q.—Who was that?

A.—I am not sure. I think it was Dr. Groover. I am not sure. I know some one did.

Q.—Was he not trying to figure on the table, while you all were there, whether or not on dues of \$2.20 per member or \$3.30 as family dues, that organization could give medical service at that price?

A.—That is right. He had it all figured. He was figuring the whole evening.

Q.—Did there not come a time when he said that he knew that medical service of good quality could not be rendered at that price?

A.—I think he expressed that as his opinion.

Q.—Did there seem to be others in the group who expressed the same opinion?

A.—I don't recall. I recall this one gentleman took a very active part in reading off his figures and indicating that it would not do. But it has been done and it is now operating.

Q.—It has not been done on dues, has it?

A.—Yes.

Q.—Has it, Mr. Penniman?

A.—Except for the purchase of equipment.

Q.—How big an exception was that?

A.—\$40,000.

Q.—How big an exception did you make otherwise?

A.—How big an exception other than dues?

Q.—Yes.

A.—None.

Q.—Any contributions from any other association?

A.—From other associations?

Q.—Yes.

A.—No; not that I know of.

Q.—None from the Good Will Fund?

A.—No.

Q.—None from any other association?

A.—None that I know of.

Q.—Who paid the salary of the administrator from August 1938?

A.—That was beyond my time. I don't know what the contract was.

Q.—You were still president, you said, until September or October 1937?

A.—Yes.

Q.—I mean, until 1938.

A.—Oh, no.

Q.—Were you a member in 1938?

A.—Yes.

Q.—Were you on the board of trustees in 1938?

A.—Yes.

Q.—But you do not know who paid the rent on the office occupied by the administrator for Group Health?

A.—After I assumed this new position—

Q.—Just answer that question, please.

A.—No; I don't know what the contract was.

Q.—You knew you were not paying his salary?

A.—I didn't pay any of the salaries.

Q.—I mean, Group Health.

A.—I don't know what arrangements were made. I didn't see the contract.

Q.—Do you know Mr. Taylor?

A.—Oh, very well.

Mr. Kelleher:—Your Honor, I think we have gone far enough with this. It is exactly the sort of thing that your Honor ruled on yesterday. The witness has gone into it far enough.

THE COURT:—He says he does not know anything about the terms of the employment. He said so very definitely. If I misinterpret him he can correct me.

The Witness:—That is correct, your Honor.

By Mr. Leahy:

Q.—See if I understand correctly. You did know that he was the administrator of G. H. A.?

A.—Yes.

Q.—You did know he had a separate office?

A.—Yes.

Q.—But you do not know who paid his salary or who paid the rent?

A.—I would not go so far as to say that. I would not know who paid his salary. I heard that some arrangement had been made, but the details of it I could not tell you about.

Q.—I am not asking for details, but just a broad answer. Who was it you heard paid his salary?

Mr. Kelleher:—Objection, your Honor, as incompetent.

THE COURT:—He may answer that.

A.—I don't believe I can answer, except from hearsay.

By Mr. Leahy:

Q.—You do not want to answer it?

A.—I would answer it in a minute, sir, if I had the information.

THE COURT:—Put your next question.

By Mr. Leahy:

Q.—The meeting on June 24, 1937, Mr. Penniman—do you recall about when it broke up?

A.—Well, I think it lasted for a couple of hours. We went there about 8 o'clock and it was about 10 when we left.

Q.—You were all friendly when you dispersed, were you not?

A.—Yes, very.

Q.—The discussion you had was back and forth as to different notions of what could and what could not be done?

A.—Very friendly.

(Mr. Penniman was next interrogated on the luncheon with Mr. Zimmerman and Dr. McGovern; also the meeting with the District Medical Society.)

By Mr. Leahy:

Q.—You did invite Mr. Zimmerman to the luncheon, did you not?

A.—Yes.

Q.—Did you tell Dr. McGovern you were going to have Mr. Zimmerman present?

A.—I certainly did.

Q.—Are you sure about that?

A.—Yes, sir; quite sure.

Q.—What did you talk about—horses and dogs?
 A.—Well, yes; talked horses and dogs, and we were going to play golf together. We talked about Group Health.
 Q.—Did you talk anything about Group Health?
 A.—Oh, yes, as near as I can recall.
 Q.—Did Dr. McGovern talk to you about the request contained in the letters?
 A.—He did.
 Q.—Did he ask for a copy of the by-laws?
 A.—He may have, sir, during the course of a very general friendly conversation; he may have said it.
 Q.—Did you tell him to go get a copy from one of your 900 members whom you did not name?
 A.—Not in that way; no.
 Q.—Did he ask you for a copy of the contract under which you would render service to your members or subscribers?
 A.—It would be in the by-laws.
 Q.—Did he ask you for a copy of the contract under which you would obtain funds?
 A.—I think he did, or in his letter. I think he brought the question up, as I recall.
 Q.—What did you say to him?
 A.—Practically the same thing that I had said to Dr. Verbrycke, as near as I can remember. I told him that I could not give him the contract, because I did not have the authority to give it, but if they wanted the charter it was a matter of record and they could get that; and that there were copies of the by-laws that had been pretty generously distributed and there would be no difficulty in his getting them.
 Q.—Did you ascribe as the reason why you could not accede to his request for a copy of the contract the fact that you had no authority to give it to him?
 A.—A Federal Home Loan Bank Board contract; yes.
 Q.—Did you say anything, in substance, to this effect, Mr. Penniman, not that you did not have any authority to give the contract, but that he, Dr. McGovern, or nobody else had any right to see it any more than he would have a right to see a contract between the owner of a department store and an express company, if any such existed?
 A.—I can't remember that. It may have come up in the conversation, but I don't specifically remember that statement at all.
 Q.—Did you make any memorandum at all of this conversation that you had with Dr. McGovern?
 A.—No; I didn't think it was necessary. It was a very friendly gathering. I didn't take notes and put them in my pocket.
 Q.—But, at all events, Dr. McGovern left without getting the information he had asked for?
 A.—Yes; but with an explanation.
 Q.—The explanation which you have just given us; is that right?
 A.—Yes; that is right.
 Q.—Did not Dr. McGovern tell you at this meeting that the committee could not intelligently discuss G. H. A. with you unless you supplied them with the information he asked for?
 A.—He may have; I don't recall specifically.
 Q.—I ask you to look at Dr. McGovern's letter, and I ask you if that is not the reason why he asked you to supply him with the information, so he could intelligently talk to you about it?
 A.—He says he is unready to discuss it intelligently.
 Q.—He states on July 15, does he not, that at the recent meeting held in the Medical Society Building, when you, Mr. Zimmerman, and Dr. Brown were present and discussed the plans and purposes of your organization, "you were kind enough to say that your board of trustees would receive a committee from the society for further discussion. The committee of the Society having this matter in charge finds itself unready to discuss the matter intelligently with you without further information. I am therefore directed to request," and so forth. You knew, then, the purpose of his request from that letter?
 A.—Yes. I think we knew the purpose.
 Q.—You mentioned one other occasion when I think you said you saw Dr. Neill, Mr. Penniman. Can you give me the date on which you saw him?
 A.—At his office?
 Q.—Yes.
 A.—I think it was in November.
 Q.—On the occasion of that visit you went up there with several members of the board of trustees, did you not?
 A.—That is correct.

Q.—How many did you take along with you on that occasion?
 A.—I took as many of the board as we could find. I mentioned their names.
 Q.—Some five or six?
 A.—I think so; yes.
 Q.—Did you go up to Dr. Neill's office to discuss the case of this young lady who had been admitted to Garfield Hospital and operated on by Dr. Schoenfeld?
 A.—Yes.
 Q.—Is that the purpose you went there for?
 A.—That is the purpose.
 Q.—Why didn't you say something about it in the confirmation of your visit and in that letter?
 A.—We did not discuss that question at all. He said he did not know anything about it; and then we got off of the subject and on to how poor the hospitals were in Washington, and about the selection of the medical staff, and then I asked a specific question by which I wanted to refresh his mind for the record—
 Q.—If I am wrong, please correct me. I thought you stated that the purpose of the visit of yourself, together with as many of the members of the board of trustees as you could get, was to go to Dr. Neill about this incident at Garfield Hospital.
 A.—That is right.
 Q.—The very next day you wrote a letter as to what occurred there, did you not?
 A.—Not altogether; not all of it. I only gave the highlights.
 Q.—But the purpose no longer constituted a highlight for the purpose of this letter?
 A.—Because Dr. Neill told us he did not know anything about it.
 Q.—Answer the question. Did that constitute any highlight for the purpose of this letter?
 A.—It is not so incorporated in there.
 Mr. Leavin:—Let him complete his answer. He was in the middle of his answer when Mr. Leahy cut him off.
 Mr. Leahy:—I did not want to cut him off. If I do, you hold me up. I get anxious to go ahead.
 The Witness:—Maybe the witness is a little slow.
 Mr. Leahy:—I am sorry, Mr. Penniman.
 The Witness:—The real purpose was—it was arranged the very next day after the incident at Garfield that we go up for the purpose of discussing that case, and of course after we discussed it or started to talk to him about it and told him that as the president of the District of Columbia Medical Society we thought he ought to know about a thing of that kind, he said he did not know anything about it and had not heard about it; and I am inclined, as I recall now, to think that he said that he would look into it and would find out, that he had not heard about it. Then we got on to a very interesting subject, the specific question as to whether or not hospitals were operated for the patients or the doctors, and answers to specific questions, the fourth one, I think, on the last page, with reference to falsely charging a physician in a suit for libel. That statement was made by Dr. Neill; he made that point. So they were just highlights of the subjects we discussed that I put into the letter.
 By Mr. Leahy:
 Q.—Why did you consider it necessary to write to Dr. Neill a résumé of what you considered to be the highlights of the discussion?
 A.—Did I start off in the beginning of the letter by stating my reasons?
 Q.—Yes; you did. You said:
 "It was good of you to give so generously of your time to the representatives of Group Health Association when they called on you at your office on Saturday afternoon. It has been my experience that when a group of men are gathered to discuss any subject varying opinions as to what was said often times result, notwithstanding the sincerity of all present. Wishing to avoid this in this instance I have deemed it advisable to confirm in substance the highlights of our discussion as follows"—
 And then you related them.
 A.—That is correct.
 Q.—Did you personally make this appointment to see Dr. Neill?
 A.—I think I did.
 Q.—What did you tell him when you called him up?
 A.—I told him we wanted to come up to see him.
 Q.—What else?
 A.—I think he said he would be glad to see us. He was very nice about it.

Q.—Did you ask to see him officially, in his official capacity, as president of the Medical Society?

A.—No; I don't think so.

Q.—Was anything said about that?

A.—I don't think so. At the time we called up Dr. Neill he was certainly very gracious, and we told him we would like to come up to see him about a matter, and he said to come on up.

Q.—Let me see if I can refresh your recollection. The day that you saw Dr. Neill was a Saturday, was it not?

A.—That is correct.

Q.—This was a Saturday afternoon you asked to see him?

A.—Yes.

Q.—And when you called up he said, all right, he would forget about its being Saturday afternoon and stay right there and would be glad to see you?

A.—He was very nice about it; yes.

Q.—Did he say that this is "off the record and not official and not to be publicized?"

A.—Yes.

Q.—And the meeting in his office was then supposed to be a chat between you and him—and when I say "you," I mean you and your group, not in any official capacity at all, but just as gentlemen sitting around the table and discussing a subject about which gentlemen might disagree. Is that right?

A.—That is right.

Q.—And there was not supposed to be any publicity about it whatsoever, was there?

A.—No.

Q.—That is what you meant, was it not, when you wrote in your letter the next day:

"I also wish to confirm our understanding that what was said by you to us was in confidence and in no wise intended for the purpose of publication."

A.—That is right.

Q.—Why did you think it was necessary, in a confidential chat which was supposed to be off the record, between you gentlemen, and not in your official capacity, to make a record which could be produced?

A.—I was careful to send it to him under personal cover.

Q.—Did you keep a copy?

A.—Yes, in my personal files.

Q.—Was there any reason for that?

A.—I said it was not for publication, and it has never been published.

Q.—It has not been published now, has it, according to your idea of publication?

A.—I don't believe so.

Mr. Lewin:—This witness was required by the Government of the United States to appear here under subpoena to testify.

Mr. Leahy:—Was he required to keep a copy in his files so that he would know about it?

Mr. Lewin:—He was required to bring all relevant documents that bore on this charge.

By Mr. Leahy:

Q.—Did you keep a copy that you made of this letter in the official files of G. H. A.?

A.—I don't think we did. I think I kept it in my own personal files.

Q.—How did the prosecution get hold of the copy?

A.—I didn't give it to them. I don't know how they got it.

Q.—You don't know how they got this (indicating)?

A.—Is not that the original?

Q.—Yes.

A.—I don't know how they got the original.

Mr. Lewin:—That was subpoenaed from the District Medical Society.

By Mr. Leahy:

Q.—If this was a confidential chart, not for purposes of publication and not in your official capacities, how did you address your letter to him as president of the District Medical Society, and address it to the office of the Medical Society of the District of Columbia?

Mr. Lewin:—We object to that as incompetent, irrelevant and grossly immaterial.

THE COURT:—The witness has said that it was a confidential chat between these gentlemen. If there are circumstances which might bear on that statement, I think they have a right to know what they are.

Mr. Lewin:—What difference does it make whether it is official or not?

THE COURT:—It goes to the question of credibility and the credence to be given to the testimony of the witness.

Mr. Lewin:—Is he planning to show that it is not confidential?

THE COURT:—I do not know what he is planning to show. I am only passing on each question as it arises.

Mr. Lewin:—What possible bearing can it have on the issues of the case?

THE COURT:—Objection overruled.

The Witness:—This was not sent to the Medical Society. I don't believe. I think if you will look at the address on there you will find it is 1824 Massachusetts Avenue. I think that is Dr. Neill's office.

By Mr. Leahy:

Q.—It is sent to him as president of the Medical Society of the District of Columbia?

A.—Yes. We went to see him in his capacity as president of the Medical Society.

Q.—You did?

A.—Yes. We told him that in the beginning, in the very first opening statement, that "We are coming to you because you, as president of the District Medical Society, should know about a situation of this kind."

Q.—I want to ask you this, and I am going to try to put it as clearly as I can so that I will not be misunderstood. When you called Dr. Neill and asked to see him, did he not say to you that Saturday that he would not see you in his official capacity, but that he would be glad to see you and would take away his Saturday afternoon and remain at his office to chat with you off the record in a confidential way?

A.—No.

Q.—That you say he did not say?

A.—I don't recall that he said that at all.

Q.—Did Dr. Neill appear to have any knowledge at all about the incident concerning which you said you went to see him?

Mr. Lewin:—He has already testified to that.

THE COURT:—That has been covered.

By Mr. Leahy:

Q.—He said he would look into it?

A.—That is my recollection.

Mr. Lewin:—He has testified to that, too. I think there ought to be some limit to this.

THE COURT:—Yes; I think there is quite a little repetition here.

Mr. Leahy:—I did not know that he had said that. It is just one question, if it is repetitious.

By Mr. Leahy:

Q.—From what source had you received your information about what you told Dr. Neill?

A.—I got it from Dr. Brown and it was confirmed by Dr. Lee.

Q.—What is Dr. Lee's full name?

A.—Allan E. Lee. I think his initial is "E."

Q.—Did Dr. Allan E. Lee talk with you personally about it?

A.—He did, personally.

Q.—Dr. Lee, I think you stated, at that time was on the staff of G. H. A.?

A.—Yes, sir.

Q.—And he had hospital privileges, did he not?

A.—That is right.

Q.—At Garfield Hospital?

A.—That is correct.

Q.—Courtesy privileges?

A.—Right.

Q.—The same as any one of these 400 doctors whom you mentioned in your letter?

A.—That is right.

Q.—And you told Dr. Neill that Dr. Lee had brought this lady to the hospital?

A.—Yes.

Q.—And then there was some discussion about—what? What was it you told him?

A.—There was some discussion that if she were in any way connected with Group Health Association, this Dr. Schoenfeld said, "I can't have anything to do with her." And she was upstairs then in a critical condition.

Q.—Was that statement made to Dr. Neill, that Dr. Lee was in the hospital at that time when the discussion took place?

A.—Oh, yes.

Q.—He was right there?

A.—Dr. Neill was not. You mean, Dr. Lee was?

Q.—Yes.

A.—Dr. Lee was present and heard it.

Q.—And Dr. Lee had the courtesy privilege to treat patients in that hospital?

A.—Yes; not surgical, however. He was not a surgeon.

Q.—But Dr. Lee had engaged Dr. Schoenfeld to perform the operation?

A.—I would not know that. Arrangements had been made for Dr. Schoenfeld to perform the operation. She was carried there in an ambulance and Dr. Schoenfeld was to be there and do the operating.

Q.—Did you tell Dr. Neill what time she got to the hospital?

A.—Yes.

Q.—What time was it?

A.—I described that she was found unconscious on the floor of her bathroom while she was dressing, and they rushed her right to Garfield Hospital.

Q.—What time of the day?

A.—Early in the morning, about seven-thirty.

Q.—Did you have information as to when she was operated on?

A.—No.

Q.—You did not find that out?

A.—It was during the day, because—

Q.—All right.

Mr. Leavin:—Let him finish.

A.—I think Dr. Lee made a statement to these doctors and they said, "We can't touch her if she is connected with Group Health." He said, "I am on the courtesy staff and I am bringing this patient in as my patient."

By Mr. Leahy:

Q.—Then what happened?

A.—They said, "If that is the case, it is all right." And then the young lady was operated on that morning.

Q.—As soon as the hospital found out that Dr. Lee was bringing the lady to the hospital as his patient, Dr. Schoenfeld operated on her; is that right?

A.—I think that is correct; yes.

Q.—I don't quite get you then, what would cause you to go up to Dr. Neill to report.

A.—Because she was in a critical condition and the doctors were arguing that they could not go up if she was a member of the Group Health Association.

Q.—As soon as the hospital found out that Dr. Lee's patient was upstairs, Dr. Schoenfeld went up?

A.—Yes; but Dr. Lee was late getting there.

Q.—I thought you said he was there?

A.—She was taken in an ambulance, right from the house. Dr. Lee was called to the house and found her, and she was taken in the ambulance, and then arrangements had been made and Dr. Lee came in 30 or 40 minutes later and found that nothing had been done, and that is when he heard the conversation in the corridor of Garfield Hospital, and then Dr. Schoenfeld said in a loud voice, for the benefit of several of the doctors around there, "If she is a member of Group Health I'm sorry, but I can't do anything about it."

Q.—But he did operate on her?

A.—Then it was Dr. Lee said, "I am registering her here as my patient. I am on the courtesy staff."

Q.—I do not quite follow what you told Dr. Neill you went up to see him about. She was still a patient of Group Health when—

THE COURT:—I think you have gone over that. I think it is quite argumentative. I think this is a good point at which to stop. We will take our adjournment now until ten o'clock tomorrow morning.

(To be continued)

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Change in Status.—H. R. 3204 has been reported to the House, making additional appropriations for the fiscal year 1941 urgently required for the Work Projects Administration and certain other federal agencies. This bill, among other things, proposes an appropriation of \$525,000 to enable the Surgeon General of the Public Health Service to assist state and local health authorities in health and sanitation activities (1) in areas adjoining military and naval reservations, (2) in areas where there are concentrations of military and naval forces, (3) in areas adjoining government and private industrial plants engaged in defense work and (4) in private industrial plants engaged in defense work. This appropriation, too, will be used to provide emergency health and sanitation services in government industrial plants engaged in defense work and in areas adjoining United States military and naval reservations outside the United States.

Bills Introduced.—S. 783, introduced by Senator Murray, Montana, proposes to amend the Selective Training and Service Act of 1940. This bill is apparently a substitute for another bill introduced by Senator Murray dealing with the deferment under the Selective Training and Service Act of medical students, interns and residents. In addition, the bill provides that any individual selected for training and service who is a graduate of a medical school and is eligible as such a graduate for the examinations given by the National Board of Medical Examiners or who was so eligible at the time of his graduation, or who is a graduate of a school of dentistry or holds a degree of doctor of dental surgery or doctor of dental medicine and who holds a license to practice medicine, surgery or dentistry in any state, territory or possession and is engaged in such practice at the time of his selection and whose physical and mental fitness for such training and service has been satisfactorily determined, shall, in lieu of induction into the land or naval forces of the United States, be commissioned an officer in the Medical Department Reserve, Officers' Reserve Corps and ordered into active military service as provided by law. S. 797, introduced by Senator Walsh, Massachusetts, provides for the establishment of a National Physical Fitness Institute in the Federal Security Agency. This institute would be authorized (1) to select, prepare and conduct research with respect to tests and testing instruments for the purpose of testing physical fitness; (2) to select, prepare and conduct research with respect to follow-up procedures, forms of reports and methods of cooperating with

agencies engaged in medical and health work, for the purpose of conserving and increasing the physical fitness of the American people; (3) conduct research for the purpose of determining the most efficient and practical methods of conserving and increasing physical fitness; (4) train specialists in the work of conserving and increasing physical fitness; (5) prepare reports and bulletins with respect to the conservation and increase of physical fitness for use by organizations and the general public; (6) on request, investigate the needs of organizations and industries for, and, to the extent possible with its personnel, cooperate with such organizations and industries in providing physical fitness services for their members and employees, and (7) cooperate with departments and other agencies of the government in programs designed to conserve and increase the physical fitness of their officers and employees. S. 839, introduced by Senator Sheppard, Texas, proposes to authorize the appointment of female dietitians and female physical therapy aides in the Medical Department of the Army. This bill provides that the Secretary of War is authorized and directed to provide for the appointment in the Medical Department of the Army of such number of female dietitians and female physical therapy aides as he may determine to be needed in the administration of laws providing for the hospitalization in army hospitals of officers, warrant officers and enlisted men of the regular army.

STATE MEDICAL LEGISLATION California

Bills Introduced.—S. 1125 proposes to authorize the governing body of a city or county to employ one or more licensed optometrists to attend to such optometric conditions as the governing board of the city or county may designate. S. 1032 proposes to create a medical research board to engage in research particularly in those fields having to do with cancer, diseases of the heart and kidney ailments. The board is to consist of the respective heads of the schools of medicine of the University of California, Stanford University and the University of Southern California and two physicians appointed by the governor. A. 671 proposes that on the trial of any person charged with driving while intoxicated evidence shall be admissible as to the amount of alcohol in the defendant's blood at the time of the commission of the alleged offense as shown by a clinical analysis of the defend-

ant's breath, urine or other bodily substance. S. 1129 proposes to make it a misdemeanor to employ on full time a physician and surgeon or an osteopath for a salary, wage or stipend of less than \$100 a month. S. 977 and A. 1301 propose to enact a separate naturopathic practice act and to create an independent board of naturopathic examiners to examine and license applicants for licenses to practice naturopathy. The bills propose to define naturopathy as "the treatment of the sick and afflicted by the use of such substances as light, air, water, clay, heat, rest, diet, herbs, electricity, massage, Swedish movements, suggestive therapeutics, magnetism, physical and mental culture." A. 1349, to amend the medical practice act, proposes to authorize the issuance of a "herb practitioner's certificate." A. 1507 proposes to create a State Board of Medical Laboratory Personnel Examiners to examine and license applicants for licenses to practice as clinical laboratory technicians or clinical laboratory technologists. A. 1570 proposes to require cooks, bus boys, waiters, waitresses, dish washers, dish dryers, and domestic servants to obtain certificates from the State Board of Health that they are not infected with any communicable disease. A. 1760 proposes that no employer or insurance company shall contract with any physician, hospital or other person for the medical or surgical care or hospitalization of any injured person on the basis of such physician, hospital or other person receiving a percentage of the gross premiums collected by such insurance company, on the basis of any percentage of such employer's pay roll, or on the basis of any fixed charges which are less than the reasonable value of such services as fixed by rates adopted by the Industrial Accident Commission. A. 1853, to amend the workmen's compensation act, proposes in effect to permit drugless practitioners to render at the expense of the employer such medical aid as an injured worker may require. A. 1988, to amend the workmen's compensation act, proposes in effect to permit osteopaths or chiropractors to render at the expense of the employer such medical aid to injured workmen as their industrial injuries may require. A. 2089, to amend the medical practice act, proposes to eliminate the right of the examining board to issue a drugless practitioner's certificate.

Connecticut

Bill Introduced.—H. 773 proposes to appropriate \$100,000 to the state department of health for the biennium ending June 30, 1943 for research and study of the cause and control of cancer.

Georgia

Bill Introduced.—H. 273 proposes to provide for a board of trustees to control, operate and manage any county hospital owned or controlled by any county having a population of from fifty to sixty thousand inhabitants. The bill specifically vests in the board the right to determine and specify what physicians and surgeons shall be admitted to practice in the hospital, and only such physicians and surgeons shall be admitted to practice in such a hospital as have first obtained a permit from the board so to do.

Idaho

Bills Introduced.—S. 22 proposes to enact a separate naturopathic practice act and to create a board of naturopathic examiners to examine and license applicants for licenses to practice naturopathy as defined in the bill. This bill was reported unfavorably to the senate, February 5. S. 41 proposes to repeal the present osteopathic practice act and to enact a new one in its stead, which would if enacted, permit licensed osteopaths to practice "surgery and obstetrics and the use of antiseptics, anesthetics, narcotics and biologics." H. 117 proposes to grant to hospitals treating a person injured through the fault of another liens on any cause of action, suit, claim, counterclaim, demand, compromise or settlement accruing to the injured person because of his injuries. H. 124, to amend the chiropody practice acts, proposes, among other things, to define chiropody to mean "the diagnosis, mechanical, electrical, medical or surgical treatment of the human foot and leg, provided that chiropodists be limited in their practice to the human foot and leg." The bill further provides that "surgical treatment, as herein used, shall be held to mean

the surgical treatment of abnormal nails, corns, callosities, bunions and other minor foot ailments and shall not include the amputation of the foot or leg, surgery of the leg, or the use of any anesthetic other than local anesthetics."

Iowa

Bill Introduced.—H. 168 proposes to condition the issue of a license to marry of the presentation by each party to the proposed marriage of a physician's certificate that the party is free from syphilis or is not in a state of that disease whereby it may become communicable as nearly as can be determined by a thorough physical examination and such standard microscopic and serologic tests as are necessary for the discovery of syphilis.

Maine

Bill Introduced.—S. 295 proposes to create a state board of eugenics which is to be authorized to order the sexual sterilization of any person living in the state who is feeble-minded, insane, syphilitic, a habitual criminal, a moral degenerate or a sexual pervert and is thereby a menace to society in that he or she may produce offspring having an inherited tendency to the social inadequacies noted.

Maryland

Bill Introduced.—H. 247 proposes to prohibit the employment of any food handler unless he presents a certificate from the county health officer that he is free from trachoma, active tuberculosis of the lungs, open skin tuberculosis, syphilis, gonorrhea, open external cancer or barber's itch.

Michigan

Bills Introduced.—H. 110 proposes to authorize the organization and operation of nonprofit osteopathic service corporations whereby osteopathic service may be provided at the expense of such corporations to such persons or groups as become subscribers to such plans under contracts which will entitle each subscriber to definite osteopathic service, by licensed osteopaths in their office, in osteopathic hospitals and in the home. H. 117, to amend the workmen's compensation act, proposes to make compensable "any disease contracted by any employee or person engaged in public health work." H. 131 proposes to prohibit the retail sale or distribution of barbituric acid, chloral hydrate or paraldehyde except on the prescription of a licensed physician, surgeon, osteopathic physician, dentists or veterinarians. The bill proposes to require the practitioners mentioned to keep a record of all "such dispensations or prescriptions." The bill also proposes to make it the duty of every physician, surgeon, osteopathic physician, dentist, veterinarians, druggists, pharmacists or hospitals, when dispensing any barbituric acid, chloral hydrate or paraldehyde to mark on the dispensing container the name, address of the patient, the date, the quantity of drugs and the name of the person dispensing the same.

Montana

Bill Introduced.—S. 70 proposes to prohibit the operation of a maternity hospital without first obtaining a license from the state board of health. The bill proposes to define a maternity hospital as any place receiving within a period of six months for care or treatment during pregnancy or during delivery or within ten days after delivery more than one woman.

New Jersey

Bill Introduced.—S. 29 proposes a procedure whereby hospitals may be reimbursed for care rendered to indigent persons injured in automobile accidents.

New Mexico

Bills Introduced.—S. 34 proposes to make it the duty of all surgeons, physicians and other persons licensed by the state to treat the sick or injured, who may treat or operate on any person for or on account of any gunshot wound, to report the fact of such treatment within twenty-four hours thereafter to the nearest or most available peace officer in the state. S. 38 proposes to make it the duty of "every physician, surgeon or other person licensed by the state of New Mexico to treat sick or injured persons to forthwith and

without delay visit and treat any person who may call on them for treatment where such afflicted person resides, within 2 miles of the office of such physician, whenever, in the judgment of such physician, surgeon or other person licensed by the state of New Mexico to treat the sick or injured, such visit can be made without probable injury to other patients of such physician, surgeon or other person licensed by the state of New Mexico to treat the sick or injured."

New York

Bills Introduced.—A. 574 proposes to require every physician immediately to give notice to the appropriate health officer of every case of infantile paralysis under his care. The bill also proposes to create in the state department of health a division of infantile paralysis, which is to be charged with the duty of conducting investigations of the cause, mortality rate, methods of treatment, prevention and cure of infantile paralysis and allied diseases, including the nature and extent of available facilities for the diagnosis and treatment of these diseases. The division is to cooperate with local health authorities, physicians, hospitals, clinics and voluntary associations in the development of suitable facilities for the diagnosis, treatment and control of infantile paralysis. S. 521 and A. 620 proposes that in New York City a domestic servant to continue his or her employment must possess the certificate of a licensed physician certifying that in his opinion he or she is not infected with syphilis or is not in a state of that disease whereby it may become communicable.

Oklahoma

Bill Introduced.—H. 180 proposes to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of a physician's certificate that the party has been given a standard serologic examination not more than fifteen days prior to the date of application and that in the physician's opinion the person is either not infected with syphilis or, if infected, is not in a state of that disease which may become communicable to the marital partner.

Oregon

Bills Introduced.—H. 150, to amend those provisions of the medical practice act relating to the practice of osteopathy, proposes (1) to create a separate examining board for osteopaths and (2) to authorize a separate osteopathic examining board to examine and license applicants for licenses to practice osteopathy. H. 203 proposes a system of compulsory health insurance.

Texas

Bills Introduced.—H. 121 proposes to prohibit the operation of a hospital, sanatorium or infirmary without a license from the state department of health. H. 122 proposes to authorize the organization and operation of nonprofit corporations to establish, maintain and operate nonprofit hospital service plans whereby hospital care may be provided by such corporations through hospitals with which the corporations have contracted to subscribers to such hospital service plans.

Washington

Bills Introduced.—S. 12 proposes to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of the certificate of a licensed physician stating that the party has been given such examination, including a standard serologic test, as may be necessary for the discovery of syphilis and that in the opinion of the physician the party is either not infected with syphilis or, if so infected, is not in a stage of that disease which is or may become communicable to the marital partner. S. 95 proposes to enact a separate naturopathic practice act and to provide for the examining of applicants for licenses to practice naturopathy by a naturopathic examining committee. The bill proposes to authorize the licensing without examination of persons who have been licensed to practice naturopathy, or any other system equal thereto, for at least two years by a state board or committee of examiners of another state. It is not clear whether individuals receiving a license in this manner are to be subject to the basic science act. A literal interpretation of the bill would require their licensing without passing the examinations given by the examining committee in the basic sciences. H. 226, to amend the chiroprody practice act, proposes to define the practice of chiroprody as "the diagnosis and the medical, surgical, mechanical . . . manipulative and electrical treatment of . . . ailments of the human foot, excepting amputation of the foot or toes or the administration of an anesthetic other than local and excepting treatment of systemic conditions or the results and complications thereof."

Wisconsin

Bill Introduced.—A. 149 proposes to require the state department of public welfare to provide in either a state or a county hospital of its selection chiropractic service for the insane for those who request it by their guardian or next of kin. The chiropractic services in such hospital are to be rendered by chiropractors selected by the department from a list furnished by the board of directors of the Wisconsin Chiropractic Association.

Wyoming

Bills Introduced.—S. 33 proposes to provide for the administration on public health in the state by creating county and district departments of health. H. 128, to amend the medical practice act, proposes that the board of medical examiners shall act on an application for a license by reciprocity within six months from the time of its presentation, "but nothing herein shall prevent the applicant from practicing within the state at any time after the application has been made and the certificate presented to the board."

Bill Passed.—H. 120 passed the house, February 10, proposing to require a physician licensed to practice medicine attending a pregnant woman for conditions relating to her pregnancy during gestation or at delivery to take or cause to be taken a sample of her blood at the time of first professional visit or within ten days thereafter, and to submit the sample to an approved laboratory for a standard serologic test for syphilis.

WOMAN'S AUXILIARY

Oklahoma

Mrs. Rush Wright of Poteau, president, Le Flore County auxiliary, presided at the November meeting at the home of Mrs. F. P. Baker, Talihina. Guest speakers were Dr. F. P. Baker, superintendent of the state sanatorium, who talked on "Tuberculosis," and Dr. Noel Kaho, who gave a patient's view of the hospital and reviewed one of his own stories written for children. The members of this group have taken up Red Cross work as their special project.

There are 152 members of the auxiliary to the Oklahoma County Medical Society, of which Mrs. F. Maxey Cooper, Oklahoma City, is president. This group is making layettes for underprivileged children in the Crippled Children's Hospital as its special project. The auxiliary entertained for the wives of physicians who attended the Oklahoma City Clinical Society Conference in November.

Mrs. Edward D. Greenberger of McAlester, president of the Pittsburg County auxiliary, had the November meeting at her home. Its special projects are providing cod liver oil for needy children, sending flowers to out-of-town hospitalized patients and sewing for the Red Cross. The guest speaker at the meeting was Mrs. Walter J. Dell, who talked on "Human Milk Stations" and *Hygia* articles.

Mrs. J. W. Rogers of Tulsa is president of the auxiliary to the Tulsa County Medical Society, which has 136 active and 11 honorary members. The November meeting was held in the home of Mrs. Harry B. Stewart, where a talking moving picture on "Tuberculosis" was presented. In December the auxiliary had a toy shower, the toys being given to underprivileged children in Tulsa hospitals. It is acquainting the public with the "Doctors at Work" radio program with the use of posters.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ADDITIONAL MEDICAL COLLEGE NEWS AND ARTICLES APPEAR IN THE STUDENT SECTION, PAGE 787.

ALABAMA

New Infantile Paralysis Center at Tuskegee.—A new Infantile Paralysis Center at Tuskegee Institute, Tuskegee, was dedicated on January 15 with special ceremonies in the institute chapel. The center, which adjoins the John A. Andrew Memorial Hospital, was financed by a grant of \$161,350 from the National Foundation for Infantile Paralysis. The basement floor of the three story building includes a gymnasium, equipment for massage, whirlpool, arm and leg baths, and electrotherapeutic machines of the latest type. A separate room contains a stainless steel Hubbard treatment tank especially for small children. The treatment pool is 25 by 30 feet, with a capacity of more than 20,000 gallons and maintained at a temperature of 92 F. The first floor includes a sound proof lobby, business office, office and treatment room for the chief surgeon, a tiled plaster room, laboratory facilities, a brace fitting room, a small children's ward which has been acoustically treated, head nurse's office and nurses' lounge. The third floor is given over entirely to two and four bed wards for patients. Tuskegee's first specific work for the crippled began in 1937, when Dr. John Watson Chenault, now director of the new center, became head of the Tuskegee Crippled Children's Center established through the cooperation of the Children's Bureau, the provisions of the Social Security Act, the Rosenwald Fund, the Alabama Department of Education and Dr. James N. Baker, Montgomery, state health officer. The speakers at the dedication included Mr. Basil O'Connor, New York, president of the National Foundation for Infantile Paralysis; Dr. Chenault; Dr. Midian O. Bousfield, Chicago, director, Negro health, Julius Rosenwald Fund; Dr. John A. Kenney, medical director, John A. Andrew Memorial Hospital, and Frederick D. Patterson, Ph.D., president of Tuskegee. Greetings from President Roosevelt were read by Mr. O'Connor.

CALIFORNIA

Public Lectures.—The Los Angeles County Medical Association sponsored a series of lectures on February 6 at the Los Angeles County Public Library. The speakers were Drs. William H. Grishaw on "Diabetes"; Charles W. Tidd, "Modern Concepts of Mental Illness," and Madeleine A. Fallon, "The Blood in Health and Disease." All are of Los Angeles.

Hospital News.—A new wing will be constructed at the Samuel Merritt Hospital, Oakland, to cost \$150,000. The building will be called the Fabiola Wing to perpetuate the name of Oakland's first private hospital. The plans have been speeded up through a recent transaction in the superior court of Alameda County by which the Fabiola Hospital Association turned over its current assets to Merritt Hospital. The action of the court in approving the transfer of the property ended a long struggle carried on by the directors of Fabiola Hospital, which, according to *Modern Hospital*, was closed eight years ago because of financial adversity resulting from the large amount of charitable work done.

COLORADO

Outbreak of Botulism.—Two deaths from botulism were reported in the bulletin of the state board of health for January. A man and his wife ate home canned peppers December 14. The man showed symptoms of botulism poisoning December 15 and died the following day. His wife was admitted to the hospital December 17, suffering with the same disorder, and died December 19. Botulism antitoxin was administered to her intravenously at 6:30 a. m. December 18 and at 9:30 a. m. December 19. The peppers were received at the state board of health laboratory December 21. *Clostridium botulinum* was demonstrated in the peppers.

Annual Registration Due Before March 1.—Every licensee of the State Board of Medical Examiners of Colorado is required by law to register annually before March 1 with

the secretary-treasurer of the board and to pay a fee of \$2, if a resident of Colorado, or \$10, if a nonresident. Failure to pay this fee within the time stated automatically suspends the right of a licensee to practice while delinquent. If he nevertheless continues to practice, he is subject to the penalties provided by law for practicing medicine without a license. Failure to pay this fee for three consecutive years results in the automatic cancellation of a delinquent practitioner's license to practice.

ILLINOIS

Society News.—Dr. Herbert E. Schmitz, Chicago, addressed the Winnebago County Medical Society at Rockford, February 11, on "Diagnosis and Treatment of Cancer of the Uterus." —The McLean County Medical Society was addressed at Bloomington, February 11, by Dr. Harold O. Jones, Chicago, on "Tubal Pregnancy." —Dr. George Crile Jr., Cleveland, discussed jaundice before the Sangamon County Medical Society in Springfield February 6.

Outbreak of Measles.—Reports from the state department of health indicate that an outbreak of measles in Illinois is reaching epidemic proportions. During the first five weeks of 1941, 5,512 cases were reported, more than four times the number of cases on record for the entire year of 1939 and more than half the total number of cases recorded for 1940. During the week ended February 3 the total for the state numbered 1,339 as against 30 for the corresponding week last year. The largest number of cases has been reported from the north central section of the state.

Chicago

Illegal Practitioner Fined.—G. M. Davis pleaded guilty in December to practicing medicine without a license and was fined \$100 and \$20 costs by Judge James G. Gullett of Elizabethtown, sitting in the Cook County court, newspapers reported.

Public Lecture on Cancer.—Dr. Alexander Brunschwig, associate professor of surgery and roentgenology, University of Chicago, the School of Medicine, delivered a public lecture at the Chicago Woman's Club February 12 on "The Story of Cancer Research." The talk was given under the auspices of the cancer research committee of the Chicago Woman's Club and the Chicago Medical Society.

Tumor Clinic at Henrotin Hospital.—The dedication of a new tumor clinic at Henrotin Hospital took place January 19 with Mr. Frank A. Miller, president of the board of directors of the hospital, presiding. The speakers included Drs. Joe Vincent McEigs, Boston; Bowman C. Crowell, John A. Graham and Charles B. Puestow. The new clinic has special quarters for the examination, diagnosis and treatment of patients suffering from neoplastic diseases. High voltage roentgen therapy equipment has been installed in a lead lined room, and radium in the form of needles and tubes is also available. Private and charity patients will be accepted for diagnosis and treatment. Special tumor conferences will be held at the hospital on the third Wednesday of each month. Dr. Henry L. Jaffe has been made director of the new clinic.

MICHIGAN

New School of Public Health—Dr. Vaughan Named Professor.—Henry F. Vaughan, D.P.H., health commissioner of Detroit, has been appointed professor of public health at the University of Michigan, where since 1922 he has been special lecturer in public health administration. Dr. Vaughan will also cooperate in planning for a new building and organization of a school of public health which, it is hoped, will be placed in operation this fall. Cooperating in the project will be the W. K. Kellogg Foundation, Battle Creek, and the Rockefeller Foundation, New York, each agreeing to provide \$500,000 for the establishment of the school. Not more than one half of the total sum of \$1,000,000 will be available for site, building and equipment, the remainder to be used over a ten year period for its initial expenses of operation. Dr. Vaughan received his degree in public health at the University of Michigan in 1916. He served as associate professor of public health at Wayne University from 1915 to 1937 and has been professor of preventive medicine and public health at Wayne since 1937 and commissioner of health of Detroit since 1918. During the World War Dr. Vaughan was in charge of the sanitary department at Camp Upton, Long Island, N. Y., and Camp Wheeler, Georgia, and was a member of a pneumonia commission appointed by the surgeon general. He was chairman of the Committee on Municipal Health Organization of President Hoover's Conference on Child Health and

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 31, 1940.

The Prevention of Infection in Air Raid Shelters

The evacuation of children from cities in which they are exposed to air raids has been described previously. But in spite of every inducement by the government a large number of children remain because their parents are unwilling to let them go or to go with them. Compulsory general evacuation has been suggested, but, as befits a democracy, the government has decided against it. There is now to be one exception to the policy of voluntary evacuation. Under the defense regulations the minister of health is taking power to require the medical examination in an area defined by an order, of any child who is thought to be suffering or to be in such a state of health as to be likely to suffer in body or mind as a result of war conditions. If the examination shows this, there will be power to send the child away under the government evacuation scheme. Such children will, if necessary, be cared for in hostels in the country. The chief danger to health for children who remain in London and other areas is infection arising from living in air raid shelters. To minimize this danger the minister of health is taking power for the medical examination of children in shelters with the object of watching their health and enabling direct medical advice to be given to parents. He is also taking power to examine any person in a shelter who is thought to be suffering from an infectious disease or to be verminous and to require isolation, removal to a hospital or cleansing.

Scheme of Compensation for War Injuries to Civilians

A scheme has been in existence for compensating civil defense volunteers and civilian workers for injuries due to enemy action. It has now been improved and extended so as to include all adults whether "gainfully occupied or not." The scheme rounds off the government plan for compensating all civilians who suffer loss of property or personal injury through air raids or other hostile acts. No such measure of protection for civilians against war risks has been devised in any other country. The compensation is comparable to the maximum amount payable under the workmen's compensation act. The injury allowances at present payable to civil defense volunteers and gainfully occupied persons will be increased to the following weekly rates: married men, \$7; single men not in a hospital, \$7; in a hospital, \$5; women not in a hospital, \$5.50; in a hospital, \$3.50. To persons not gainfully occupied the following will be paid weekly: married men not in a hospital, \$4; in a hospital, \$2; single men not in a hospital, \$4; in a hospital, \$2; women not in a hospital, \$3; in a hospital, \$1.50.

The government felt that special consideration should be given to a widow in view of the immediate cessation of her husband's earnings and that provision should be made for the widow of a civil defense volunteer or of a civilian worker comparable to that for the widow of a serving soldier. They therefore decided that such a widow should be paid an inclusive allowance of \$10 weekly for the first ten weeks after her husband's death by a war injury. The government considers that the scheme is preferable to a supplementary state insurance measure, which would have many difficulties. The experience so far of air raid casualties is that most of the injured were not occupied in earning a living.

Though a great advance, the scheme has aroused protest from women leaders, mostly members of Parliament, against the differentiation in the rates to be paid to nonearning men and

women, whatever case there may be for differentiation in payments for lack of earnings. But such differentiation as they object to is common to all our schemes of social service.

Immunization Against Diphtheria: American Help

Crowded air raid shelters and the redistribution of the population caused by the evacuation of children have increased the danger of the spread of diphtheria. The Ministry of Health aims at immunizing at least five million children before the diphtheria season, which is usually early in the year. At the request of the British Red Cross, the American Red Cross is sending to England by air sufficient material for the preventive inoculation of two hundred thousand children, and sufficient to immunize a further eight hundred thousand is following by sea. The ministry has had such an enthusiastic response to its offer of free immunization that supplies of material are running short. We have eleven and a half million children under the age of 15 years.

Rockefeller Grant to the Royal College of Surgeons

The Royal College of Surgeons has been damaged by the explosion of a bomb outside. Because it did not receive a direct hit, the damage is slight, mainly to ceilings. As a precaution the more valuable books and specimens had previously been removed to a place of greater safety. The Rockefeller Foundation has made a gift of \$7,500 for the expenses of evacuating the library and research laboratories.

The Treatment of British Prisoners of War

A satisfactory report on British prisoners of war has been received through the International Red Cross in Geneva. It has been made by two Swiss physicians, Drs. Marcel Jound and Martel. They have been allowed to visit hospitals in German occupied France and Belgium. It is particularly satisfactory that British army surgeons who are prisoners take part in the care of their wounded countrymen.

Marriages

HUBERT DINWIDDIE CROW, Buckingham, Va., to Miss Pattie Gregg Featherstun of Richmond, Nov. 18, 1940.

EARLE SINCLAIR MCKEY JR., Valdosta, Ga., to Miss Alys Katherine Keiley of Atlanta, Nov. 6, 1940.

BURTON EUGENE FIELD, Fayetteville, Ark., to Miss Georgina Corson in Curdsville, Va., Nov. 30, 1940.

FRANK D. ROYCE, Danville, Ky., to Mrs. Margaret Whitlock Lewis of Lebanon, Nov. 27, 1940.

WILLIAM P. HIGGINS JR. to Miss Ruth Connor, both of Fort Worth, Texas, Nov. 21, 1940.

EGBERT VERNON ANDERSON to Miss Rela Brown Randall, both of Atlanta, Ga., Nov. 21, 1940.

PAUL H. HARWOOD JR., Southport, Conn., to Miss Sibyl Young Hine of New York, Nov. 16, 1940.

THEODORE LOUIS TAKACY, Slater, S. C., to Miss Grace Jameson in Greenville, Nov. 16, 1940.

JOHN HUBERT CLARK, Knoxville, Tenn., to Miss Lois Helene Nabrit of Nashville, Nov. 28, 1940.

WALTER JOHN BALZER to Miss Elizabeth Compton, both of Davenport, Iowa, Nov. 30, 1940.

ABNER BURESH to Miss Jane Elizabeth Cray, both of Limc Springs, Iowa, Nov. 28, 1940.

JOEL FLEET, Live Oak, Fla., to Miss Margaret Fishler of Fernandina, Nov. 10, 1940.

MORRIS M. GANDIN to Miss Lucille Slotnikow, both of Los Angeles, Nov. 3, 1940.

GERALD KENT RIDGE, Ventura, Calif., to Miss Priscilla Ferne Beverly, Nov. 8, 1940.

MARTIN CROW to Miss Kathryn Sue Martin, both of Warren, Ark., Nov. 27, 1940.

Deaths

William Clarence Braisted * Surgeon General, Rear Admiral, United States Navy, retired, died, January 18, at his home in West Chester, Pa., aged 76. Admiral Braisted was born in Toledo, Ohio, Oct. 9, 1864. He was graduated from the University of Michigan, Ann Arbor, in 1883 and from the College of Physicians and Surgeons, medical department of Columbia College, New York, in 1886. He served his internship at Bellevue Hospital, New York, from 1886 to 1888, and from 1888 to 1890 he practiced medicine in Detroit. He entered the navy as an assistant surgeon in 1890 and served on many naval vessels. Admiral Braisted was an instructor of surgery at the Naval Medical School, Washington, D. C., on two different occasions. In 1904 he fitted out and equipped the hospital ship *Relief*. He represented the medical department in Japan during the Russo-Japanese war. From 1906 to 1912 he was assistant chief of the Bureau of Medicine and Surgery and assisted in its reorganization. In 1906-1907, during the administration of Theodore Roosevelt, Admiral Braisted was an attending physician at the White House. He was the fleet surgeon of the Atlantic Fleet from 1912 to 1914 and for nearly seven years was surgeon general and chief of the Bureau of Medicine and Surgery, with rank of rear admiral. He retired from the navy in 1920. Admiral Braisted was President of the American Medical Association, 1920-1921; in 1913 president of the Association of Military Surgeons of the United States; president of the National Board of Medical Examiners from 1915 to 1921; fellow of the American College of Surgeons. He served as president of the board of directors of the Columbia Hospital for Women and was on the board of visitors of St. Elizabeths Hospital in Washington. He was president of the Philadelphia College of Pharmacy and Science, 1920 to 1926. Until his retirement from the navy, Admiral Braisted held executive posts with the American Red Cross. He received the Distinguished Service Medal for service during the World War, the Order of Bolivar from Venezuela and a decoration from the Emperor of Japan. He was a fellow of the Royal College of Surgeons of Edinburgh and was awarded honorary degrees by Columbia University, New York; Jefferson Medical College of Philadelphia, and Northwestern University, Chicago.



WILLIAM CLARENCE BRAISTED
1864-1941

Francis Marion Shook * Passed Assistant Surgeon Lieutenant, United States Navy, retired, Oakland, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; entered the navy in 1905; received his commission as passed assistant surgeon March 15, 1908; retired Nov. 8, 1912 for incapacity resulting from an incident of the service; served during the World War; received the Theodore Roosevelt Medal and letter of commendation from Secretary of the Navy for "Service in San Francisco Fire and Earthquake"; member of the Pacific Coast Oto-Ophthalmological Society; aged 60; died, Dec. 27, 1940, in Orinda of pulmonary embolus and cholecystitis with stone.

Fred Ellsworth Clow * Wolfeboro, N. H.; Harvard Medical School, Boston, 1904; formerly secretary of the New Hampshire Board of Registration in Medicine; past president of the New England Association for the Study of Neoplastic Diseases; fellow of the American College of Physicians; past president of the Carroll County Medical Society; served during the World War; member of the executive committee and visiting physician on the staff of the Huggins Hospital; aged 59; died, January 4, of arteriosclerotic heart disease with coronary occlusion.

John Howard Crosby, Fultonville, N. Y.; Long Island College Hospital, Brooklyn, 1895; member of the Medical Society of the State of New York; county coroner; physician of the county jail in Fonda; served as school physician and at one time as member of the school board; health officer of the consolidated health district of Glen, Fultonville and the town of Rout since 1936; on the staffs of the Nathan Littauer Hospital, Gloversville, Amsterdam (N. Y.) City Hospital and St. Mary's Hospital, Amsterdam; aged 66; died, Dec. 9, 1940, of coronary occlusion.

N. Stone Scott, Cleveland; Western Reserve University Medical Department, Cleveland, 1889; fellow of the American College of Surgeons; formerly professor of surgery and at one time dean of the Cleveland College of Physicians and Surgeons, medical department of Ohio Wesleyan University, later amalgamated with Western Reserve; at various times on the staffs of the Cleveland General, Lutheran, St. Luke's and St. Vincent's Charity hospitals; aged 77; died, Dec. 24, 1940, in St. Petersburg, Fla., of heart disease.

Henry S. Crouse, Littlestown, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1905; member of the Medical Society of the State of Pennsylvania; past president of the Adams County Medical Society; for many years member of the school board; on the staff of the Annie M. Warner Hospital, Gettysburg; aged 62; died, Dec. 17, 1940, of coronary embolism.

Arthur Bowles Fleming * Tamaqua, Pa.; Medico-Chirurgical College of Philadelphia, 1902; formerly vice president of the Medical Society of the State of Pennsylvania; past president and secretary of the Schuylkill County Medical Society; served during the World War; aged 65; died, Dec. 21, 1940, in the Temple University Hospital, Philadelphia, of coronary occlusion.

Thomas Bedford Richardson, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1890; Victoria University Medical Department, Coburg, Ont., 1890; F.R.C.S., Edinburgh, 1894; served with the Canadian Army during the World War; member of the Pensions Commission from 1917 to 1929; on the staff of the Christie Street Hospital; aged 72; died, Dec. 1, 1940.

Timothy M. Ryan, Torrington, Conn.; Baltimore Medical College, 1902; member of the Connecticut State Medical Society; past president of the Litchfield County Medical Society; formerly police and fire department surgeon; on the staff of the Charlotte Hungerford Hospital; aged 67; died, Dec. 16, 1940, in St. Mary's Hospital, Waterbury, of bronchopneumonia and nephritis.

John Joseph Decker * Sioux City, Iowa; University of Wisconsin Medical School, Madison, 1931; police surgeon; at one time assistant superintendent of the Lakeville State Sanatorium, Middleboro, Mass.; aged 36; died, Dec. 18, 1940, in St. Joseph's Mercy Hospital of cerebral hemorrhage following an automobile accident in November.

Arthur H. Bursleson, Olivet, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896; member of the Michigan State Medical Society; past president and secretary of the Eaton County Medical Society; on the staff of the Hayes-Green Memorial Hospital, Charlotte; aged 79; died, Dec. 17, 1940, of heart disease.

Clark E. Congdon, Fort Plain, N. Y.; Long Island College Hospital, Brooklyn, 1890; member of the Medical Society of the State of New York; past president of the Montgomery County Medical Society; on the staff of the Amsterdam (N. Y.) City Hospital; county coroner; aged 72; died, Nov. 25, 1940, of carcinoma of the rectum.

Charles Oliver DeLaney * Winston-Salem, N. C.; Jefferson Medical College of Philadelphia, 1919; member of the American Urological Association; fellow of the American College of Surgeons; on the staff of the City Memorial Hospital; aged 45; died, Dec. 15, 1940, of coronary occlusion.

Harvey Sprague Chapman, Pontiac, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1885; president of the board of education; formerly mayor, health officer, county physician and bank president; aged 79; was killed, Dec. 31, 1940, in an automobile accident.

William Abraham McBride, Indianapolis; Indiana University School of Medicine, 1909; member of the Indiana State Medical Association; served during the World War; aged 64; formerly on the staff of St. Vincent's Hospital, where he died, Dec. 14, 1940, of coronary thrombosis.

Immanuel Pyle, Jersey City, N. J.; Columbia University College of Physicians and Surgeons, New York, 1898; medical supervisor of the city public school system; on the staff of the Medical Center of Jersey City; aged 65; died, Dec. 30, 1940, of a skull fracture received in a fall.

Thomas Joseph Smith, Cranston, R. I.; College of Physicians and Surgeons, Baltimore, 1884; member of the Rhode Island Medical Society; on the staff of the Homeopathic Hospital, Providence; aged 82; died, Nov. 19, 1940, of arteriosclerosis, diabetes mellitus and gangrene.

Samuel Davis Robinson, Clarksdale, Miss.; University of Tennessee College of Medicine, Memphis, 1914; member of the Mississippi State Medical Association; aged 62; on the staff of the Clarksdale Hospital, where he died, Dec. 26, 1940, of coronary occlusion.

Clyde Benson Conger, San Jose, Calif.; Stanford University School of Medicine, San Francisco, 1935; member of the California Medical Association; aged 30; died, Dec. 18, 1940, in a hospital at San Francisco of uremia, amyloid disease and chronic ulcerative colitis.

Furman Leaming Pyke @ La Fayette, Ind.; Indiana University School of Medicine, Indianapolis, 1913; served during the World War; aged 52; on the staffs of St. Elizabeth Hospital and the Home Hospital, where he died, Dec. 24, 1940, of poliomyelitis.

Edmund Buckner Sweeney, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1904; on the staffs of the Stetson Hospital and St. Mary's Hospital; aged 58; died, Dec. 25, 1940, in the Jefferson Hospital of pneumonia.

Ira Clifford Duncan, Beaver Falls, Pa.; University of Pittsburgh School of Medicine, 1912; member of the Medical Society of the State of Pennsylvania; aged 59; died, Dec. 30, 1940, in the Rochester (Pa.) General Hospital of metastatic carcinoma.

Samuel Ashton Bonnafton @ Wilmington, Del.; Jefferson Medical College of Philadelphia, 1887; University of Pennsylvania Department of Medicine, Philadelphia, 1888; aged 73; died, Dec. 28, 1940, in the Delaware Hospital of carcinoma of the cecum.

Linn Van der Heyden Reed, New York; Cornell University Medical College, New York, 1917; served during the World War; aged 50; died, Dec. 22, 1940, in the New York Hospital, Westchester Division, White Plains, N. Y., of coronary thrombosis.

Robert Brodie, Owensboro, Ky.; Medico-Chirurgical College of Philadelphia, 1899; aged 66; died, Dec. 27, 1940, in the Norton Memorial Infirmary, Louisville, of pneumonia following an operation for removal of an oyster shell from his esophagus.

Henry Franklin Schamel, Baltimore; University of Maryland School of Medicine, Baltimore, 1897; aged 68; died, Dec. 29, 1940, in the University of Maryland Hospital of carcinoma of the esophagus and arteriosclerotic cardiovascular disease.

Frank Wilburn Dudley, Manila, Philippine Islands; University of California Medical Department, San Francisco, 1895; fellow of the American College of Surgeons; visiting surgeon, St. Joseph's Hospital; aged 72; died in December 1940.

Erastus Lafayette Walker @ Magee, Miss.; University of Nashville (Tenn.) Medical Department, 1900; past president of the Central Medical Society; aged 67; on the staff of the Magee General Hospital, where he died, Dec. 18, 1940.

William Robert Abbott @ Chicago; Northwestern University Medical School, Chicago, 1911; fellow of the American College of Surgeons; on the staff of the Englewood Hospital; aged 55; died, Dec. 21, 1940, of coronary occlusion.

Samuel Hutchings Price, Montvale, Va.; Bellevue Hospital Medical College, New York, 1876; member of the Medical Society of Virginia; for many years bank president; aged 88; died, Dec. 14, 1940, of uremia and myocarditis.

Joseph Merle Cowen, Glenwood, Iowa; University of Nebraska College of Medicine, Omaha, 1933; member of the Iowa State Medical Society; aged 35; died, Dec. 9, 1940, of injuries received in an automobile accident.

Robert Erle Evans, Ada, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1934; member of the Oklahoma State Medical Association; aged 31; was killed, Dec. 31, 1940, in an automobile accident.

Alfred Dannhauser @ New York; Eberhard-Karls-Universität Medizinische Fakultät, Tübingen, Württemberg, Germany, 1920; on the staff of the Mount Sinai Hospital; aged 46; died, Dec. 16, 1940, of heart disease.

George Oliver Evans, Miami Beach, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; formerly on the staff of the Uniontown (Pa.) Hospital; aged 66; died, Dec. 24, 1940, of heart disease.

Charles Wesley Le Fever @ Philadelphia; Jefferson Medical College of Philadelphia, 1897; aged 71; on the staff of the Jefferson Hospital, where he died, Dec. 17, 1940, of carcinoma of the esophagus with metastasis.

Thomas Jefferson Henry @ Detroit; Trinity Medical College, Toronto, Ont., Canada, 1899; aged 79; on the staff of the Grace Hospital, where he died, Dec. 24, 1940, of hypostatic pneumonia and acute bronchitis.

Arthur Burr Coleburn @ Norwalk, Conn.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1890; aged 77; died, Nov. 5, 1940, of myocarditis and arteriosclerosis.

Vittorio Risicato, New York; Regia Università degli Studi di Catania, Facoltà di Medicina e Chirurgia, Italy, 1905; aged 57; was found dead, Dec. 17, 1940, of an overdose of morphine, self administered.

Mary Law Burgess-Barrow King, Chattanooga, Tenn.; Woman's Medical College of Baltimore, 1890; for many years a medical missionary in China; aged 71; died, Sept. 14, 1940, in California of tuberculosis.

Albert D. Wehinger, Kingman, Kan.; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1913; aged 62; died, Nov. 10, 1940, of a malignant growth with metastases to the lung.

Edwin J. Kuh @ Chicago; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1882; an Affiliate Fellow of the American Medical Association; aged 82; died, Dec. 31, 1940, of heart disease.

Malcolm Benton Boone, Mount Victory, Ohio; Rush Medical College, Chicago, 1890; formerly member of the board of education and county board of health; aged 73; died, Dec. 22, 1940, of heart disease.

Vincent John Hawkins @ St. Paul; Rush Medical College, Chicago, 1881; an Affiliate Fellow of the American Medical Association; aged 85; died, Dec. 11, 1940, of valvular heart disease.

William R. Ross, Mount Vernon, Ill.; College of Physicians and Surgeons, Baltimore, 1880; member of the Illinois State Medical Society; aged 86; died, Dec. 19, 1940, of heart disease.

Ralph E. Cummings @ Bentleyville, Pa.; University of Pittsburgh School of Medicine, 1908; aged 55; died, Dec. 28, 1940, in the Mercy Hospital, Pittsburgh, of roentgen ray burns.

William F. Cathcart, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; aged 68; died in December 1940 of arteriosclerosis.

Albert F. Houek, Chilesburg, Va.; College of Physicians and Surgeons, Baltimore, 1884; member of the Medical Society of the State of North Carolina; aged 83; died, Dec. 4, 1940.

Alfred R. Cobbs @ Damascus, Ohio; Miami Medical College, Cincinnati, 1893; aged 75; died, Dec. 26, 1940, in the Central Clinic and Hospital, Salem, of perforated duodenal ulcer.

Uel Keith, Fort Worth, Texas (licensed in Texas by years of practice); at one time health officer of Erath County; aged 72; died, Dec. 18, 1940, in Midland of coronary thrombosis.

John Serbert Johnson, White Salmon, Wash.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1880; aged 84; died, Dec. 5, 1940, of bronchopneumonia.

Rebel J. Brown, Gatesville, Texas; Memphis (Tenn.) Hospital Medical College, 1896; aged 70; died, Dec. 20, 1940, of cerebral hemorrhage.

Claude Melnotte Wade, Chicago; Louisville (Ky.) National Medical College, 1891; aged 77; died, Dec. 26, 1940, of cerebral hemorrhage.

Albert Eliphalt Cotes, Springfield, Ohio; Ohio Medical University, Columbus, 1900; aged 66; died in December 1940.

Morris Richman, Philadelphia; Medico-Chirurgical College of Philadelphia, 1908; aged 64; died, Dec. 22, 1940, of pneumonia.

Edwin Dorsey Abraham, Los Angeles; Rush Medical College, Chicago, 1918; aged 49; died, Dec. 17, 1940, of uremia.

Joe Brown Acree @ Paducah, Ky.; Kentucky School of Medicine, Louisville, 1905; aged 63; died, Dec. 27, 1940.

Janette Baldwin @ Brooklyn; Cornell University Medical College, New York, 1901; aged 68; died, Dec. 17, 1940.

Joseph J. Pittman, Charles Town, W. Va.; Baltimore Medical College, 1891; aged 81; died, Dec. 19, 1940.

Walter R. Reed, Jesup, Ga.; Atlanta College of Physicians and Surgeons, 1899; aged 63; died in November 1940.

Oscar K. Hukill, Egypt, Ark.; Barnes Medical College, St. Louis, 1903; aged 67; died, Dec. 14, 1940.

William T. Spears, Rutledge, Ga.; Atlanta Medical College, 1884; aged 86; died, Dec. 7, 1940.

Correspondence

ACETYSALICYLIC ACID DEATHS

To the Editor:—I note in THE JOURNAL of January 11, page 145, the article about deaths from acetylsalicylic acid. In the village of Vandalia, Mich., 5 miles from Cassopolis, is a man who has been a chronic invalid suffering from arthritis deformans for more than twenty years. For seventeen years he has been confined to the use of a wheel chair. The records indicate, and the facts are supported by members of his family, that he has been taking 125 grains (8 Gm.) of aspirin daily for seventeen years without any apparent harmful effects. His family say that they have been unable to reduce the amount.

E. M. CUNNINGHAM, M.D., Cassopolis, Mich.

SEMANTICS OR THE TYRANNY OF WORDS

To the Editor:—I note in the January 18 issue of THE JOURNAL Dr. Ramsay Spillman's comments on the use of initials in his own specialty and further his distaste for the use of EKG, though as he states "out of his own field." To him it suggests a Teutonic flavor.

I was one of the earlier students of the electrocardiograph in this country and the first to establish a modern cardiac laboratory in the state of New Jersey. It never occurred to me, however, that there was a Teutonic flavor to the initials EKG, for as a matter of fact the K might as well be Dutch. My knowledge of this language is practically nil, but I depend on the fact that while temporarily acting as ship's surgeon on a Dutch liner the sign on my office door read "Dokter."

We all have our antipathies, and I mention here one among several. It is the misuse of the word "clinic." To the medical man it suggests instruction at the sick bed, and rightly so for it is derived from the Greek word *kline*, meaning bed. However, today one reads of cooking clinics, real estate clinics, clinics for living, automobile clinics and so on "ad infinitum" and, for the medical man, "ad nauseam."

HENRY WALLACE, M.D., New York.

ROENTGEN EXAMINATION OF GASTRO-INTESTINAL TRACT

To the Editor:—In the communication by Dr. Ramsay Spillman in THE JOURNAL, January 18, referring to the first two paragraphs concerning "A complete g-i examination," I am prompted to ask Why an incomplete g-i examination? Failure to follow a barium sulfate meal through the entire gastrointestinal tract has always seemed a deplorable waste of valuable clinical material. A complete study may prevent mistakes or reveal coincidental disease. In cases of suspected disease of the lower portion of the bowel mistakes will be reduced if both barium meal and enema are observed.

The gastrointestinal tract is, and should be considered as, a physiologic unit. Failure to detect a pathologic condition in this tract (with history and symptoms justifying a gastrointestinal roentgen examination) calls for a cholecystogram.

Complete gastrointestinal roentgen examinations will be less frequently misinterpreted if test meal and stool examinations are routine preliminaries.

These remarks do not pertain to "Diction and Terminology" but are related to the subject of roentgen examinations of the gastrointestinal tract and their correct interpretation.

GREGORY CONNELL, M.D., Oshkosh, Wis.

Medical Examinations and Licensure

COMING EXAMINATIONS

BOARDS OF MEDICAL EXAMINERS

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, February 15, page 647.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various centers, June 23-25. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: Oral. Part II, Cleveland, May 31-June 1. Final date for filing application is April 1. Sec., Dr. Pant M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF INTERNAL MEDICINE: Oral. April, in advance of the meeting of the American College of Physicians and June, in advance of the meeting of the American Medical Association. Written. Oct. 20. Final date for filing application is Sept. 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Oral. Philadelphia, June 6-7. Sec., Dr. R. Glen Spurling, 404 Brown Bldg., Louisville, Ky.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Part II, Groups A and B, Cleveland, May 28-June 1. Final date for filing application is March 15. Sec., Dr. Paul Tilus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Oral. Cleveland, May or June. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF OTOLARYNGOLOGY: Oral and Written. Cleveland, May 31-June 2. Final date for filing application is March 1. Sec., Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha.

AMERICAN BOARD OF PATHOLOGY: Oral and Written. Cleveland, June 2-3. Final date for filing application is May 1. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: Chicago, May 18, following the Region III meeting of the American Academy of Pediatrics. Boston, Oct. 12, immediately following the annual meeting of the American Academy of Pediatrics. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF RADIOLOGY: Oral. Cleveland, May 30-June 1. Final date for filing application is April 15. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: Written. Part I. Various centers, April 2. Sec., Dr. J. Stewart Rodman, 225 South Fifteenth St., Philadelphia.

Georgia October Report

Mr. R. C. Coleman, joint secretary, Georgia State Board of Medical Examiners, reports the written examination for medical licensure held at Atlanta, Oct. 8-9, 1940. The examination covered 10 subjects and included 100 questions. An average of 80 per cent was required to pass. Five candidates were examined, all of whom passed. Eleven physicians were licensed to practice medicine by reciprocity and 1 physician was so licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Emory University School of Medicine.....	(1938)		86.2
Rush Medical College.....	(1940)		86.5
Tulane University of Louisiana School of Medicine.....	(1940)		83.7
Univ. of Rochester School of Medicine and Dentistry.....	(1940)		83.6
University of Toronto Faculty of Medicine.....	(1938)		87.3

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Indiana University School of Medicine.....	(1924), (1936)		Indiana
State University of Iowa College of Medicine.....	(1939)		Iowa
Tulane University of Louisiana School of Medicine.....	(1932)		Tennessee
(1937), (1938) Louisiana			
Johns Hopkins University School of Medicine.....	(1932)		Maryland
Tufts College Medical School.....	(1914)		Maine
University of Tennessee College of Medicine.....	(1939)		Tennessee
University of Texas Faculty of Medicine.....	(1939, 2)		Texas

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College.....	(1929)		N. B. M. Ex.

Montana October Report

Dr. S. A. Cooney, secretary, Montana State Board of Medical Examiners, reports the written examination for medical licensure held at Helena, Oct. 1-2, 1940. The examination covered 10 subjects. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. Seventeen physicians were licensed to practice medicine by reciprocity and 1 physician so licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Southern California School of Medicine ..	(1940)		82.8
University of Illinois College of Medicine ..	(1935) & 1, (1939)		84.6
Temple University School of Medicine ..	(1940)		82.4

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists.....	(1939)		California
Loyola University School of Medicine.....	(1938)		Minnesota
Northwestern University Medical School.....	(1938)		Ohio
Rush Medical College.....	(1939)		Oregon
State University of Iowa College of Medicine.....	(1938), (1939)		Iowa
University of Kansas School of Medicine.....	(1923)		Kansas
University of Michigan Medical School.....	(1936)		Michigan
University of Minnesota Medical School.....	(1939), (1940)		Minnesota
St. Louis University School of Medicine.....	(1913)		Arizona
Creighton University School of Medicine.....	(1933), (1936)		Nebraska
University of Nebraska College of Medicine.....	(1925)		Nebraska
University of Texas School of Medicine.....	(1930)		Texas

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Minnesota Medical School.....	(1940)		N. B. M. En.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice—Alleged Concealment of Sponge as Toll to Running of Statute of Limitations.—The defendant physician, in December 1934, performed an operation on one of the plaintiff's arms. In the course of the operation he unknowingly failed to remove a gauze sponge which had been inserted, and he sewed up the operative wound with the sponge still retained therein. He ceased treating the plaintiff in March 1935 and never examined him thereafter except once in June 1937. In October 1937, another operation was performed on the plaintiff's arm by other physicians and the sponge was then discovered. In October 1938, the plaintiff brought suit against the defendant for malpractice. From a judgment for the plaintiff the defendant appealed to the United States circuit court of appeals, fourth circuit.

The only question which the court was called on to decide was whether or not the plaintiff's action for malpractice was barred by the West Virginia statute of limitations, which requires that such actions be commenced within one year after the right to bring the same shall have accrued. The plaintiff contended that the statute does not run in favor of a party who has, by some act of his own, concealed the cause of action from the knowledge of the injured party. He argued that when the defendant sewed up the wound with the sponge inside he so concealed it that the plaintiff was unable to discover its presence until the subsequent operation in October 1937 and that therefore the statute of limitations would not commence to run until the latter date. The circuit court of appeals held that a right of action accrues when the wrong is committed and, in the absence of some act of intentional concealment by the wrong doer, the mere ignorance of the injured party of the actionable wrong will not suspend the statute. The court admitted that the action of the defendant in sewing up the incision in the plaintiff's arm did conceal the sponge and prevent the plaintiff from discovering that it had been left in the wound, but it held that such conduct was in no sense an act designed or intended to conceal liability or prevent or delay suit. Since there was no evidence of a fraudulent concealment, therefore, the court held that the action should have been commenced within one year of the defendant's last treatment, which the plaintiff had failed to do. Accordingly, the judgment for the plaintiff was reversed.—*Pickett v. Aglinsky, 110 F. (2d) 628 (1940).*

Osteopathy: Right of Osteopath in California to Be Granted a "Health and Development Certificate."—Prior to 1922 the statutes of California provided for the issuance, by the California state board of education, the defendant in this case, of health and development credentials to any one holding a certificate to practice medicine and surgery issued by the California state board of medical examiners. These credentials qualified the holder to perform certain health services connected with the public school system. At that time the state board of medical examiners was the sole licensing agency for practitioners of all schools of healing, including osteopaths.

Accordingly the state board of education, without question, issued certificates of health and development to any osteopath who had been properly licensed by the state board of medical examiners. On Dec. 21, 1922, however, the state of California passed an initiative measure which set up a separate and exclusive licensing board for practitioners of osteopathy known as the state board of osteopathic examiners. After that date the state board of education refused to issue credentials of health and development to any osteopath who held a license granted by the state board of osteopathic examiners. Consequently, in 1930 the state board of education refused to issue such credentials to the plaintiff osteopath, who had been licensed by the state board of osteopathic examiners, because he did not present a certificate to practice medicine and surgery issued by the state board of medical examiners. The plaintiff, therefore, filed a petition for a writ of mandamus to compel the defendant board to issue him a "health and development credential." From a judgment for the plaintiff, the defendant appealed to the district court of appeal, third district, California.

The defendant board admitted that the initiative resulted in no change so far as the requirements and qualifications of an osteopath were concerned but contended that it was justified in refusing to issue the requested certificate since the education law had not been changed but still required a certificate of licensure from the state board of medical examiners. The court held, however, that the legislative intent indicated that the plaintiff should not be deprived of his right to the certificate here sought simply because a board other than the state board of medical examiners was authorized to license osteopaths. Prior to the initiative act of 1922 there was no legislative discrimination between the graduates of medical and osteopathic schools. The only effect of the 1922 act, continued the court, was to change the name of the licensing body. It was not the intent of the legislature, in separating the power to issue osteopathic licenses, to destroy the power of the state board of education to issue credentials to osteopaths licensed by the state board of osteopathic examiners. The court concluded, therefore, that the plaintiff osteopath was entitled to the credentials which he sought. Accordingly the judgment of the lower court, ordering the defendant board to issue these credentials to the plaintiff, was affirmed.—*Jordt v. California State Board of Education, 96 P. (2d) 809 (Calif., 1939).*

Society Proceedings

COMING MEETINGS

- Alabama, Medical Association of the State of, Mobile, Apr. 15-17. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.
- American Association of Anatomists, Chicago, Apr. 9-11. Dr. E. R. Clark, Dept. of Anatomy, University of Pennsylvania School of Medicine, Philadelphia, Secretary.
- American Association of Pathologists and Bacteriologists, New York, Apr. 10-11. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.
- American Dermatological Association, New Orleans, Apr. 7-11. Dr. Harry R. Foerster, 208 East Wisconsin Ave., Milwaukee, Secretary.
- American Physiological Society, Chicago, Apr. 16-19. Dr. Philip Bard, 710 North Washington St., Baltimore, Secretary.
- American Society for Experimental Pathology, Chicago, Apr. 15-18. Dr. Harry P. Smith, Dept. of Pathology, University of Iowa, Iowa City, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Chicago, Apr. 15-19. Dr. G. Philip Grabfield, 319 Longwood Ave., Boston, Secretary.
- American Society of Biological Chemists, Chicago, Apr. 15-19. Dr. C. G. King, Dept. of Chemistry, University of Pittsburgh, Secretary.
- Arizona State Medical Association, Phoenix, Apr. 16-19. Dr. W. Warner Watkins, 15 East Monroe St., Phoenix, Secretary.
- Arkansas Medical Society, Little Rock, Apr. 14-16. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.
- Central Surgical Association, Ann Arbor, Mich., Feb. 28-March 1. Dr. George M. Curtis, Ohio State University, Columbus, Ohio, Secretary.
- Federation of American Societies for Experimental Biology, Chicago, Apr. 15-19. Dr. D. R. Hooker, 19 West Chase St., Baltimore, Secretary.
- Northern Tri-State Medical Association, Tiffin, Ohio, Apr. 8. Dr. E. Benjamin Gillette, 320 Michigan St., Toledo, Ohio, Secretary.
- South Carolina Medical Association, Greenville, Apr. 15-17. Dr. Julian P. Price, 105 West Cheves St., Florence, Secretary.
- Southeastern Surgical Congress, Richmond, Va., March 10-12. Dr. Benjamin T. Beasley, 45 Edgewood Ave., S.E., Atlanta, Ga., Secretary.
- Tennessee State Medical Association, Nashville, Apr. 8-10. Dr. H. H. Shoulders, 766 Church St., Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1931 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

44:805-962 (Dec.) 1940

- Roentgen Kymographic Evaluation of Size and Function of Heart. A. Keys, H. L. Friedell, New York; L. H. Garland, San Francisco; M. F. Madrazo, and L. G. Rigler, Minneapolis.—p. 805.
- Roentgen Appearance of Enlarged Left Auricle in Patients with Mitral Disease (in Frontal Position). D. Routier and R. Heim de Balsac, Paris, France.—p. 834.
- Origin of Tumors Occurring in Apex of Lung. W. C. Hall, Hartford, Conn.—p. 838.
- "Cystic" Disease of Lung. C. B. Peirce, Montreal, Canada.—p. 848.
- Spontaneous Pneumoperitoneum in Perforated Peptic Ulcer: Roentgen Analysis of Forty-Four Cases. L. T. Thaxter, Portland, Maine.—p. 853.
- Correlation of Roentgen and Blood Examinations in Multiple Myeloma. W. J. Marquis, Newark, N. J.—p. 858.
- *Treatment of Advanced and Recurrent Carcinoma of Breast. W. S. Peck, H. K. Ransom and F. J. Hodges, Ann Arbor, Mich.—p. 866.
- Radiation Treatment of Giant Follicular Lymphadenopathy and Its Polymorphous Cell Sarcoma Derivative (Symmers' Disease). S. Rubenstein, New York.—p. 875.
- Benign Giant Cell Tumor of Bone: Five Year Cure. L. Edciken, Philadelphia.—p. 884.
- Teratoma (Mixed Tumor) of Right Parotid Gland with Metastasis to Sternum and Second Rib Left: Case Report. S. K. Livingston, Hines, Ill.—p. 887.
- Measurement of Gamma Radiation in Roentgens. T. N. White, L. D. Marinelli and G. Failla, New York.—p. 889.

Treatment of Carcinoma of Breast.—According to Peck and his associates, a review of the case records of all patients with mammary cancer admitted to the University Hospital from 1931 to 1938 emphasizes the importance of providing care to patients with advanced (inoperable) or recurrent carcinomas. Of 920 consecutive admissions suitable for study 514 patients had received no prior treatment, and of these 163 (31.7 per cent) were inoperable. Of 162 patients who had been treated prior to admission by some method other than radical surgery 86 were no longer operable. The cancers of 244 patients had been removed by radical mastectomy at some time prior to their admission, and of these 63 showed no demonstrable recurrence or distant metastases while 181 had local recurrences and distant metastases and were inoperable. Therefore at the time of admission among 920 patients there were 430, or 46.6 per cent, for whom nothing more than palliative treatment could be offered. Also a number of patients classified as "operable" when first examined returned at a later date with recurrences or metastases following initial treatment at the hospital. On the basis of this, more than one half (56.1 per cent) of all patients with mammary carcinoma were considered inoperable. As time goes on further recurrences may be expected. Fixation of the tumor to the thoracic wall, metastases, widespread cutaneous involvement, high degree of malignancy, extensive ulceration with infection and associated pregnancy contraindicate radical surgical intervention. The immediate treatment of such cases is irradiation. Surgery has little to offer for the inflammatory type of carcinoma or "cancerous mastitis" in which the entire breast becomes uniformly enlarged and firm with considerable cutaneous edema. In the management of such a case the best chance for relief is intensive external irradiation, and more than the usual amount of apparently normal skin should be irradiated because of invisible lymphatic extensions. Irradiation of complicating ulcerations by the divided dose method is usually followed by a definite and rapid decrease of the tumor and also a similar decrease in the infection. Some patients have received as much as 3,000 roentgens (fractionated) to areas greater than 100 sq. cm. Surgical removal of the residual local carcinoma and ulcer may be considered from six to eight weeks after radiation therapy is

completed. There were 10 patients among the 920 who were considered as having two breast primaries; the incidence of more than one primary cancer of any type was 3.3 per cent. Local recurrences after mastectomy have already occurred among 54 of 351 patients. Often multiple small subcutaneous nodules of carcinoma arise almost simultaneously in and about the scar, soon followed by similar small nodules throughout the wall of the chest. It is not practical to excise or to irradiate these individual lesions. As a palliative measure, large portals extending well beyond the evident lesions are used and single doses of from 600 to 900 roentgens are applied to each portal (half-value layer = 5 mm. of aluminum and a focal skin distance of 50 cm.). Such doses may be repeated in from two to three months if necessary. For the recurrence that tends to remain localized in the scar, continuously increasing in size until large, hard, nodular masses are formed and ulceration occurs and does not exceed 2 cm. in diameter, from 1,000 to 1,500 roentgens (half-value layer of 5 mm. of aluminum and portals not to exceed 10 sq. cm.) may be applied on three consecutive occasions or a topical application of radium may be used. This treatment usually destroys the local carcinoma and may be effective if the growth is not present in the rest of the scar. Such treatment should not be repeated to the same area. When these lesions are more extensive, the same dose may be delivered to areas up to 50 sq. cm. These doses may be repeated in a few months. Another type of local recurrence resembles the inflammatory form of primary mammary cancer, in which many foci of carcinoma rapidly appear about the scar or other residual focus and soon spread by lymphatic extension in all directions across the wall of the chest. The prognosis in these recurrences is poor, as the carcinoma is usually extending at a similar rate in other parts of the body. Irradiation of the chest may retard the local lesion, but it does not seem to alter the final result. For local recurrence in an unoperated breast previously treated with intensive irradiation the roentgen dose must be reduced because the surrounding normal tissues will not always recover from a second application of heavy radiation. It seems wise to remove the breast whenever possible after the first irradiation and not delay until local recurrence is evident.

Archives of Ophthalmology, Chicago

25:1-190 (Jan.) 1941

- Leptotrichosis Conjunctivae (Parinaud's Conjunctivitis) Without Glandular Involvement: Report of Case. F. H. Verhoeff, Boston.—p. 1.
- Striae Retinae. A. Hagedoorn, Amsterdam, Netherlands.—p. 7.
- Microscopic Study of Central Lens Capsule in Glaucoma Capsulare. E. E. Blaauw, Buffalo.—p. 12.
- Vitreous, Zonule and Ciliary Processes from Surgical Point of View, Especially with Regard to Operations for Cataract and Detachment of Retina. G. L. Johnson, Durban, Natal, Union of South Africa.—p. 25.
- Seasonal Variations in Lipid Content of Crystalline Lenses, with Special Reference to Influence of Sunshine and Humidity. P. W. Salit, Iowa City.—p. 32.
- Oculists and Oculists: Astrology and Eye. B. L. Gordon, Atlantic City, N. J.—p. 36.
- Experimental Studies of Ocular Tuberculosis: VI. Effect of Sensitivity and Immunity on Experimental Lesions of Ocular Tuberculosis. A. C. Woods and E. L. Burk, Baltimore.—p. 62.
- Birth Injury of Cornea with "Glass Membrane" in Anterior Chamber: Report of Case. C. A. Percera, New York.—p. 75.
- Conjunctivitis in Erythema Exudativum Multiforme: Report of Three Cases. M. P. Koke, Iowa City.—p. 78.
- Gelatinous Cancer of Choroid Following Carcinoma of Rectum: Report of Case. L. von Saltmann, New York.—p. 89.
- Congenital Retinal Folds and Microcephaly: Report of Case. S. Gartner, New York.—p. 95.
- Rickettsial-like Organism of Conjunctival Epithelium of Pig. J. D. W. A. Coles, Onderstepoort, Union of South Africa.—p. 101.
- *Role of Anoxia in Production of Episcleritis and Scleritis: Treatment with Vasodilators. W. F. Duggan, Utica, N. Y.—p. 113.
- Necrosis of Cornea Due to Vitamin A Deficiency: Report of Case. H. K. Goldberg and K. Schlieve, New York.—p. 122.
- Visual Field Defects Associated with Cerebellar Tumors. L. M. Weinberger, Chicago, and J. E. Webster, Philadelphia.—p. 128.
- Problem of Diabetic Retinitis. H. Elwyn, New York.—p. 139.

Anoxia in Production of Episcleritis and Scleritis.—Duggan states that the early changes in episcleritis and scleritis are basically similar to those of acute retrobulbar neuritis, acute exudative choroiditis, acute iritis, iridocyclitis, cyclitis and acute closure of the central retinal artery or one of its branches. The early pathologic picture can be ascribed to increased capillary permeability and arteriolar spasm, with resulting tissue anoxia. The early pathologic change consists of localized edema and

round cell infiltration. In severe cases in which the localized anoxia is of sufficient intensity and duration, focal necroses occur. The focal nature of these lesions must be due to a hypersensitivity of one or more arteriolar-capillary units, which accounts for the sharply localized lesions. Substances which act on the capillaries and/or on the arterioles are possible etiologic agents. Capillary permeability is increased beyond physiologic limits by lack of available oxygen in the circulating blood, by lack of ascorbic acid, by histamine, by certain drugs and by spasm of the arterioles supplying the involved capillaries. Also thiamine, nicotinic acid and riboflavin seem to be concerned with oxidative processes in the body. In cases in which the condition is ascribed to menstruation it is said to be due to an excess or deficiency of certain hormones in the blood. Other factors may be temporary alkalosis, allergy, tuberculosis, and so on. All such conditions can be interpreted as manifestations of acute localized tissue anoxia due to varying degrees of arteriolar spasm and increased capillary permeability accompanied by capillary and venular dilatation. Many of the etiologic factors are of endogenous origin and become operative because of temporary failure of homeostatic mechanisms within the body. Multiple etiologic factors are probably operative in most cases. As vasodilator therapy has been of value in the treatment of other lesions of vascular dysfunction, the author used 0.1 Gm. of sodium nitrite intravenously and 15 or 30 mg. of erythryl tetranitrate orally for 5 cases of episcleritis and scleritis. Treatment effected a rapid amelioration of signs and symptoms in from three to eight days. The treatment is based on a consideration of the pathologic physiology which caused the lesions. Patients may not all be helped, but the therapy is indicated for conditions formerly attributed to allergy, focal infection, exposure to cold or tuberculosis. Vasodilator therapy increases the supply of oxygen-containing blood to the anoxic capillaries and tissues. Tissue anoxia is relieved, capillary permeability is decreased, absorption of exudate occurs and anatomic and functional states return to normal, if the tissue anoxia has not lasted too long.

Archives of Surgery, Chicago

42:1-202 (Jan.) 1941

- Hydatid Disease (Hydatidosis): Pathology and Treatment. J. Arce, Buenos Aires, Argentina.—p. 1.
- *Pernicious Anemia Following Total Gastrectomy. K. A. Meyer, S. O. Schwartz and L. H. Weissman, Chicago.—p. 18.
- *Some Factors in a Lowered Mortality Rate for Acute Appendicitis: Analysis of 2,013 Consecutive Cases. L. Rumbold, Rochester, N. Y.—p. 25.
- Cytology of Gastric Contents, with Special Reference to Gastritis. R. E. Mulrooney and G. B. Eusterman, Rochester, Minn.—p. 55.
- *General Abdominal Lymphadenopathy, with Special Reference to Non-specific Mesenteric Adenitis. A. O. Wilensky, New York.—p. 71.
- Experimental Bile Pancreatitis, with Special Reference to Recovery and to Toxicity of Hemorrhagic Exudate. C. Ireneus Jr., Chicago.—p. 126.
- Carcinoma of Pancreas. J. T. Kauer and F. Glenn, New York.—p. 141.
- Primary Appendiceal Abscesses. N. F. Hicken and J. H. Carlquist, Salt Lake City.—p. 156.
- Seventy-Third Report of Progress in Orthopedic Surgery. J. G. Kuhns, R. J. Joplin, W. A. Elliston, G. Bailey, J. A. Reidy, Boston; W. B. Sheppard, G. N. Boice, Wilmington, Del.; F. E. Ilfeld, Los Angeles, and R. Perlman, Cincinnati.—p. 172.

Pernicious Anemia Following Total Gastrectomy.—Meyer and his co-workers report a case of pernicious anemia five years after total gastrectomy. The case, besides illustrating the usual points stressed in the literature, emphasizes the insidious onset, the necessity of indefinite observation and the specificity of liver therapy. The authors followed the case, though intermittently, from the time of resection until the pernicious anemia appeared. The bone marrow was studied before and after liver therapy. The patient's cure was of short duration, as four months after his discharge from the hospital he was readmitted because of having drunk saponated solution of cresol and died within forty-eight hours. Necropsy revealed gangrenous esophagitis and enterocolitis, edema and cloudy swelling of the viscera, acute glomerulonephritis and an anatomically adequate esophagojejunal stoma with considerable dilatation of the jejunum. Also there was marked redness and hypertrophy of the bone marrow, which microscopically showed extreme hyperplasia. The erythrocyte development had reverted to megaloblastic maturation. The bone marrow, studied before and after liver therapy, showed, respectively, the classic changes of untreated and treated pernicious anemia. The first specimen showed extreme hyper-

plasia with marked preponderance of erythroid elements, a "left shift," a megaloblastic type of erythrocyte maturation, granulocyte maturation, and many primitive cells and mitotic figures. Sixteen days after the beginning of liver therapy it was still hyperplastic, but the erythroid elements showed a relatively decreased hyperplasia. Both erythroid and granulocytic maturation had reverted to normal, and the excess of primitive cells and mitotic figures had disappeared.

Mortality in Acute Appendicitis.—Rumbold analyzes the factors contributing to the lowered mortality in 2,013 consecutive cases of proved acute appendicitis observed at the Genesee Hospital between 1925 and 1938. The mortality, as reported by various workers, from acute appendicitis is between 2.16 and 8.5 per cent. Since 1930, when there were 133 proved cases of acute appendicitis at the hospital with a mortality rate of 6.01 per cent, the number of cases has increased 25 per cent and the mortality rate has decreased yearly until 1938, during which year there were 199 cases with a death rate of 0.5 per cent. Study of the factors that have contributed to the reduced rate shows that attention to the following principles may further reduce the mortality: 1. Continued education of the public against delay in calling a physician in the presence of abdominal upsets. 2. Continued education of physicians and surgeons so as to keep them appendicitis conscious, insuring early diagnosis and operation in the first twelve hours. This is particularly necessary in patients less than 10 and more than 40 years of age. The policy of "watchful waiting" has proved disastrous in these cases. 3. Preoperative preparation of the patient who is acutely ill. 4. A well conceived preoperative plan of treatment, which includes evaluation of the stage of appendicitis which will bear on the decision between immediate operation and delay, and on the choice of an anesthetic, the proper incision and the limitations of surgical intervention. 5. Postoperatively, further involvement should be anticipated and those procedures which will aid in combating it should be used. These are attention to fluid balance, use of the duodenal tube to combat nausea, vomiting and distention, and avoidance of fluid or food by mouth or of futile enemas before intestinal tone is restored. Morphine in sufficient amounts to produce its physiologic action is to be given and the patient's condition gaged by daily leukocyte counts and frequent blood pressure readings. Transfusion is essential in the presence of a marked drop. Sex, age, anesthesia, history of catharsis, delay in reaching the surgeon's care still contribute to the mortality. The factors credited for the reduced mortality rate are (1) better postoperative care, (2) use of the McBurney incision and (3) closure of all wounds except those with well walled off abscesses. The delayed or Ochsner treatment has its place in a few cases.

General Abdominal Lymphadenopathy.—Mesenteric adenitis is fairly common and may simulate numerous acute surgical conditions. It may seem to be limited to the lymph nodes with no primary preceding demonstrable lesion. Wilensky points out that general abdominal lymphadenopathies are similar to lymphadenopathies in other areas. In the abdomen many of them are parts of a distinct symptom complex, such as typhoid or dysentery. Others are related to the "rheumatic" group of diseases, and still others to various conditions associated with generalized cutaneous manifestations. A large group seem to be related to a preceding "catarrhal" or "throat" infection, and this seems to have some relation to forms of glandular fever, infectious mononucleosis and abdominal grip. A type of lymphadenopathy which cannot be clinically associated with any demonstrable preceding or accompanying lesion is referred to as nonspecific mesenteric adenitis. The causative agent is not always demonstrable. In only a minority of the cases can bacteria, some strain of streptococcus, be demonstrated in the nodes. No relation with venereal lymphogranuloma can be demonstrated by the Frei test. A causal relation cannot be established between parasites and nonspecific mesenteric adenitis. The port of entry for the causative agent for nonspecific mesenteric adenitis is rarely the appendix. More commonly entrance seems to be related to "catarrhal" or "throat" infections, and infrequently the condition is a manifestation of a hematogenous mechanism or of an agent swallowed from the oropharynx and passed along to the terminal portion of the ileum, from which local absorp-

tion occurs. Most often nonspecific mesenteric adenitis is a local effect of absorption from some local nondemonstrable lesion in the ileal segment. This includes various forms of transient enteritis, surface infections, various gross and microscopic injuries and physical and chemical trauma. Its similarity to cervical adenitis is absolute. In either case local injuries and infections permit the passage of the causative agent to the appropriate lymph nodes. As in many cases abdominal lymphadenopathy is part and parcel of some larger definite clinical entity, treatment must be along the lines for the original disease. In the presence of nonspecific mesenteric adenitis and the absence of suppuration or other complication, abdominal explorations are more or less frequently necessary to establish the true nature of the intra-abdominal condition.

Journal of Pediatrics, St. Louis

17:709-866 (Dec.) 1940

- Surgical Closure of Patent Ductus Arteriosus. R. E. Gross, Boston.—p. 716.
- Significance of Protein Metabolism in Nephrotic Child. L. E. Farr, Wilmington, Del.—p. 734.
- *Chemotherapy of Staphylococcal Infections. E. E. Osgood, with technical assistance of Inez E. Brownlee, Portland, Ore.—p. 740.
- Neuromuscular Development of Human Infant as Exemplified in Achievement of Erect Locomotion. Myrtle B. McGraw, New York.—p. 747.
- Hydrometrocolpos in Infancy: Congenital Atresia of Vagina with Abnormally Abundant Cervical Secretions. P. J. Mahoney and J. W. Chamberlain, Boston.—p. 772.
- *Renal Glycosuria: Hereditary and Clinical Study of One Family. S. G. Babson, Portland, Ore.—p. 781.
- Dermatomyositis in Childhood. M. S. Hecht, Baltimore.—p. 791.
- Serum Reaction Complicated by Acute Carditis. G. H. Wadsworth and C. H. Brown, Detroit.—p. 801.
- Erythroblastosis in Icterus Gravis Neonatorum Successfully Treated with Vitamin K. Evelyn W. Mayman, Modesto, Calif.—p. 806.

Chemotherapy of Staphylococcal Infections.—Osgood subjected 13 patients with serious staphylococcal infection to treatment with neosarsphenamine or sulfathiazole alone, to neosarsphenamine and sulfathiazole or to neosarsphenamine and sulfamethylthiazole. Twelve of the patients recovered. His limited experience leads him to believe that it is important to start therapy at the earliest possible moment, to maintain blood levels continuously, to drain localized accumulations of pus, to introduce sulfathiazole in suspension locally, as suggested by Spink and Hansen, and to continue treatment for at least one week after evidence of infection has disappeared. The optimal concentration of sulfathiazole is from 5 to 10 mg. per hundred cubic centimeters. In some experiments with cultures of living marrow neosarsphenamine was superior to sulfathiazole, in others the reverse was true. The combination of the two drugs was often more effective than either alone, but always more effective than the less effective of the two used. Neither drug led to complete sterility of the cultures in as many cases as did sulfanilamide against the beta hemolytic streptococcus when similarly tested. The larger the inoculation of organisms, the less effective were the drugs. The available data suggest that each drug will have a place in the therapy of staphylococcal infections and that their combination may prove more effective than either alone in the most serious infections.

Renal Glycosuria.—Babson presents data on renal glycosuria found in three generations of the same family. The youngest (4 years of age) member who has the disorder was especially studied. The oldest living member is the mother and grandmother respectively of the other 2 patients. She is now 52 years of age and has had almost constant glycosuria for twenty-one years. Her oldest brother was known to have sugar in his urine. The mother's oldest son, now 32 years of age, has had glycosuria for nine years and his 4 year old son is also affected, whereas his other 2½ year old son has so far sugar-free urine. The affected boy exhibited ketonuria, mild acidosis and a renal threshold for sugar below 50 mg. per hundred cubic centimeters. His diet was restricted in carbohydrates. Diabetes mellitus with a normal renal threshold has developed in the oldest member. A rise in renal thresholds for sugar to within normal limits has been observed in the other 2 cases. No special form of treatment is usually necessary. The diet should not be restricted. On the contrary, it should contain sufficient additional carbohydrate to offset the loss of sugar in the urine. This will prevent ketosis and maintain an adequate glycogen reserve. The renal glycosuria was transmitted directly as a dominant character.

Kansas Medical Society Journal, Topeka

41:497-538 (Dec.) 1940

- Preoperative and Postoperative Management of Gallbladder Disease. R. W. McNealy, Chicago.—p. 497.
- Therapy in Pneumonia. R. H. Major, Kansas City.—p. 502.
- Partial Spontaneous Pneumothorax. H. M. Swaney, Goodland, and G. M. Tice, Kansas City.—p. 507.
- Medical Management of Urinary Infection in Pregnancy. O. W. Davidson, Kansas City.—p. 511.

New Orleans Medical and Surgical Journal

93:277-330 (Dec.) 1940

- Plea for Wider Employment of Roentgen Rays in Examination of Lungs. B. R. Kirklin, Rochester, Minn.—p. 277.
- Warren Stone. J. V. Schlosser, New Orleans.—p. 281.
- Effect of High Temperature on Body Functions: Regulation of Body Temperature. H. Laurens, New Orleans.—p. 283.
- Id.: Effects of High Environmental Temperature on Human Body. P. H. Jones Jr., New Orleans.—p. 288.
- Fulminating Meningococcal Septicemia with Bilateral Suprarenal Hemorrhage: Report of Two Cases. Emma S. Moss and J. R. Schenken, New Orleans.—p. 294.
- Mortality of Acute Appendicitis: Continuing Study (4,207 Cases) from the Charity Hospital of Louisiana at New Orleans. F. F. Boyce, New Orleans.—p. 300.
- Management of Third Stage of Labor. R. E. Arnell, W. F. Gucriero and R. F. Phillips, New Orleans.—p. 308.

New York State Journal of Medicine, New York

40:1761-1828 (Dec. 15) 1940

- Respiratory Depression During Anesthesia Attributable to Carotid Sinus Disturbances: Clinical and Laboratory Study. C. L. Burstein, New York.—p. 1767.
- Occipitoposterior Position and Modified Scanzoni Maneuver. R. J. Pieri, Syracuse.—p. 1773.
- Acute Anterior Poliomyelitis: Manifestation of Acute Tissue Anoxia. W. F. Duggan, Utica.—p. 1780.

Oklahoma State Medical Assn. Jour., Oklahoma City

33:1-58 (Dec.) 1940

- Present Status of Female Hormone Therapy. C. S. McMurray, Nashville, Tenn.—p. 1.
- Indications, Results and Reasons for Use of Different Types of Skin Grafts. S. S. Ellis and C. Von Wedel, Oklahoma City.—p. 8.
- Thyroid Disease. F. S. Newman, Shattuck.—p. 14.
- Horseshoe Kidney. A. R. Sugg, Ada.—p. 18.
- Undulant Fever (Brucellosis). F. P. Fry Jr., San Antonio, Texas.—p. 21.

Public Health Reports, Washington, D. C.

55:2251-2302 (Dec. 6) 1940

- Studies on Foodstuffs Fumigated with Methyl Bromide. H. C. Dudley, J. W. Miller, P. A. Neal and R. R. Sayers.—p. 2251.

55:2303-2336 (Dec. 13) 1940

- Smallpox in the United States: Its Decline and Geographic Distribution. C. C. Dauer.—p. 2303.
- Qualifications of Professional Public Health Personnel: I. Plan and Scope of Survey. M. Derryberry and G. Caswell.—p. 2312.
- Washing Facilities for Food Handlers on Ships: Report of Survey. G. C. Sherrard.—p. 2319.

55:2337-2368 (Dec. 20) 1940

- Recommended Procedure for Mouse Protection Test in Evaluation of Antimeningococcus Serum. Sara E. Branham and Margaret Pittman.—p. 2340.

- *Ticks and Relapsing Fever in the United States. G. E. Davis.—p. 2347.
- Nursing Visit Transcripts as Training Material. Margaret G. Arnstein and M. Derryberry.—p. 2351.

Ticks and Relapsing Fever in the United States.—Davis states that the first cases of relapsing fever of proved endemic origin were reported from Bear Creek Canyon, Jefferson County, Colo. Since then reports indicative of new endemic areas have been published from ten other states: Arizona, Kansas, Washington, Utah, Nevada, Idaho, New Mexico, Oklahoma, Texas and California and possibly Montana. Ticks have been reported from Florida, Minnesota, New York, Wisconsin and Wyoming. One or more of the six species of *Ornithodoros* that have been reported from each of the seventeen states are *Ornithodoros turicata*, *hermsi*, *parkeri*, *talaje*, *coriaceus* and *coprophilus*. The presence of *talaje* in Northern states is without doubt due to importation in shipments of materials. However, infestation of ten Northern houses has been reported.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

24:581-628 (Dec.) 1940

- Pilot Fitness, a Safety Factor in Aviation. C. E. Ferree and G. Rand.—p. 581.
 Rare Ocular Developmental Anomalies in Association with Congenital and Acquired Blindness: Clinical "Proof" of Vitreous Development. J. H. Young.—p. 597.
 Gaucher's Disease with Biopsy of Typical Pingueculae: Case. T. East and L. H. Savin.—p. 611.
 Cerebral Fat Embolism with Recovery: Involvement of Central Retinal Artery. J. J. Evans.—p. 614.

British Journal of Radiology, London

13:393-430 (Dec.) 1940

- Radium Treatment of Cancer of Penis. M. Lederman.—p. 393.
 Further Lung Dusting Experiments. A. E. Barclay, K. J. Franklin and M. M. L. Prichard.—p. 410.
 *Cases of Spondylolisthesis of Unusual Interest. J. Blewett.—p. 416.
 Soft Tissue Radiography. E. P. Allen and H. W. Calder.—p. 422.
 Tonns. F. Roberts.—p. 428.

Spondylolisthesis.—Blewett presents 2 cases of spondylolisthesis and a discussion of its pathologic anatomy. He believes that examples of the condition in a minor form still occur which have not been generally appreciated. The 2 case histories are of interest because they have some bearing on the production of symptoms and because their type has not been described heretofore. When the recumbent posture is assumed during examination the cases are in no way different from many others. Their interest lies in the fact that the deformity could be demonstrated only in the erect posture and would have passed unnoticed if such examination had been omitted. The need for investigation in this position before an olisthesis is excluded is therefore indicated. The displacement was present only while the patients were erect and slipped back when they resumed the recumbent position. They experienced pain only when they were erect and they were comfortable only when recumbent. The pain of the first patient was typically of a referred sciatic type, and other signs of neural involvement were lacking. The second complained of sciatic pain and a lumbar ache amounting almost to a feeling of dissolution. Lateral roentgenograms in the erect position demonstrated a forward displacement and it is seen that to some extent collapse of the intervertebral disk accounts for the deformity. This mechanism does not operate alone, as a small degree of forward displacement is present. Whatever the possible explanation of the pain may be, the cases suggest that the actual movement of one vertebra on another can be the direct source of a severe form of sciatica.

British Medical Journal, London

2:731-772 (Nov. 30) 1940

- Surgical Experiences with the British Expeditionary Force. C. M. Page.—p. 731.
 *Hemolytic Streptococci in Cardiac Lesions of Acute Rheumatism. S. Thomson and J. Innes.—p. 733.
 *Hyperventilation and Effort Syndrome. E. Guttman and M. Jones.—p. 736.
 Observations on Effort Syndrome. J. D. Spillane.—p. 739.
 *Sulfonamide Therapy in Lupus Erythematosus. F. Glyn-Hughes and A. M. Spence.—p. 741.

Hemolytic Streptococci in Cardiac Lesions in Rheumatism.—Thomson and Innes present data on a study of the cardiac valves in 10 cases of acute rheumatism in which necropsy was performed as soon as possible after death. In some of the cases as much as twenty hours had elapsed. Hemolytic streptococci were recovered from the hearts of 5. Ten similar control necropsies were carried out, but from none was a hemolytic streptococcus isolated; however from a heart valve in 3 cases an α type streptococcus was obtained which was not isolated from the blood. Successful cultures were obtained from eleven of twenty-six valves showing acute rheumatic lesions. The condition of many rheumatic patients examined after death is such that negative results are likely to be obtained, as many will have survived the early acute phase. Of the technical

difficulties encountered the most important is the presence of other bacteria, especially coliform bacilli, which gain access to the blood either soon after death or in the agonal stage. These bacteria rapidly overgrow the hemolytic streptococcus. Therefore the isolation of the causative agent cannot be expected in every case, and the authors are not surprised that they were unable to isolate the hemolytic streptococcus from the heart in more than 50 per cent of the cases. They suggest that hemolytic streptococci are the cause of rheumatic fever, being responsible for the valvulitis, and that some other process leads to pathologic valvular changes which allow organisms of various types, including hemolytic streptococci, to lodge there. Clinical and bacteriologic evidence that infection of the upper respiratory tract by hemolytic streptococci precedes and accompanies the syndrome of rheumatic fever favors the first hypothesis. The fact that hemolytic streptococci can be isolated from the damaged heart valves of patients dying from rheumatic fever but not from the undamaged valves or from the healthy valves in control cases supports the hypothesis. The absence of hemolytic streptococci in the blood and their presence in the damaged valve appears to enhance the view. The second hypothesis is favored by the fact that the pathologic reactions in the valves and myocardium are not those generally accepted as typical of streptococcal infections. This difficulty has been overcome by the suggestion that the patient suffering from rheumatic fever reacts in an abnormal way to streptococcal infection. Another argument favoring the second hypothesis is that other types of streptococci were isolated from heart valves and tissues of patients with rheumatic fever and controls when the blood yielded no such organism; a streptococcus was isolated from six damaged valves and from two undamaged valves, a γ streptococcus from seven damaged valves, an α streptococcus from three valves of the control series, type IV pneumococcus from a damaged valve and an α streptococcus from the spleen of 1 of the patients of the rheumatic series. However, the hemolytic streptococcus was isolated only from damaged valves and therefore the authors are inclined to support the view that the cardiac lesions are due to infection with hemolytic streptococci.

Hyperventilation and Effort Syndrome.—Guttman and Jones observed 52 cases of effort syndrome with no demonstrable organic disease. For practical purposes the cases are divided into psychogenic, postinfective and constitutional groups. The authors use the term "effort syndrome" to describe cases which show an excessive physiologic response (breathlessness, fatigue, precordial pain and palpitation) to some forms of exercise or excitement. As soon as the routine examination was carried out on admission the patients were given a hyperventilation test, only the total ventilation being measured as a check of the patient's cooperation. The ventilation in 34 of the 52 cases was measured and the ventilation of 9 was less than 10 liters. In the remaining cases the reading varied between 10 and 18 liters. The patients were instructed to keep on overbreathing for ten minutes, and 18 did so; 5 breathed more than nine minutes and the others gave up after from two to eight minutes, as they thought the symptoms too disagreeable. The authors were satisfied that the purpose of the test—the reproduction of symptoms—was fulfilled when the patients gave up, or that they had hyperventilated sufficiently to justify the conclusion that they were not abnormally sensitive to overbreathing. The patients were asked to describe what they felt. The symptoms described were those commonly associated with tetany—e. g., paresthesias and disturbances of consciousness—rather than those characteristic of effort syndrome. In view of their observations the authors state that they cannot support the contention that hyperventilation has an important place in the etiology of effort syndrome. Only 4 patients complained of more or less characteristic thoracic pain, which is a symptom complained of by 66 per cent of patients with effort syndrome. Palpitation did not occur. It would appear that hyperventilation can be of importance only in a proportion of cases of effort syndrome. The few patients who showed no symptoms as a result of the test overbreathed to an extent far beyond the effort which otherwise produced their symptoms. All the others ventilated sufficiently to reproduce their symptoms or to show tetanic symptoms. Since the latter patients showed tetanic symptoms

for the first time when they hyperventilated, it is reasonable to assume that their original symptoms were not related to over-breathing. There appear to be two ways in which hyperventilation may operate in producing the syndrome; anxiety plus exertion may bring about hyperventilation and subsequently tetanic and kindred symptoms and habitual overventilation. These two possibilities are not mutually exclusive, but it is certain that hyperventilation is an etiologic factor in only some cases.

Sulfonamide Therapy in Lupus Erythematosus.—In view of the probable streptococcic origin of lupus erythematosus, Glyn-Hughes and Spence tried the sulfonamides for its treatment. Sulfapyridine was used for most of the 12 patients treated. Every patient experienced a definite response to the therapy, a point which strongly supports the theory of a streptococcic origin of the disease. Six patients are completely healed and remain so. Even patients who were not benefited, some of them chronic sufferers, were loath to abandon the treatment owing to the hopes to which the initial improvement had given rise. The existence of some latent and resistant focus of infection is probably the cause for the failures. This is illustrated by a patient who relapsed twice, but after a previously overlooked cervical erosion was eradicated she was completely cured. The successes were among those patients who had not suffered from the disease for more than a year. Roughly 25 Gm. of the sulfonamides administered over a period of about four weeks were successful in clearing up what is regarded an intractable disease. The effect of the drug appears specific and suggests that the prognosis in early cases may be favorable.

Edinburgh Medical Journal

47:717-788 (Nov.) 1940

The Work of a Regimental Medical Officer. D. S. Middleton.—p. 717.
Treatment of War Wounds in France: May-June 1940. J. S. Jeffrey.—p. 727.

Iodine and Exophthalmic Goiter. D. M. Lyon.—p. 743.

47:789-872 (Dec.) 1940

Ergot and Its Alkaloids. A. C. White.—p. 789.
Levulose Tolerance Test in Intolerance to Antisiphilitic Therapy. G. O. Horne.—p. 801.
Intra-Abdominal Diagnosis. E. K. Mackenzie.—p. 805.
Hyperemesis Gravidarum. E. C. Fahmy.—p. 822.
Care of Children in Wartime and After. L. Thatcher.—p. 836.

Journal of Neurology and Psychiatry, London

3:293-362 (Oct.) 1940

Effect of Raised Intracranial Pressure on Cerebral Blood Flow. F. C. Courtice.—p. 293.
Metabolism of the Brain. F. C. Courtice.—p. 306.
Cerebellar Atrophy Associated with Etat Marbré of Basal Ganglions. R. M. Norman.—p. 311.
Neurohistologic Basis for Sensation of Pain Provoked from Deep Fascia, Tendon and Periosteum. G. Weddell and J. A. Harpman.—p. 319.
Juvenile Paresis in One Twin. R. Ironside.—p. 329.
Electroencephalogram in Electrically Induced Convulsions in Rabbits. H. Löwenbach and R. S. Lyman.—p. 336.

Journal of Pathology and Bacteriology, Edinburgh

51:317-472 (Nov.) 1940

Corynebacterium Diphtheriae and Composition of Its Toxin in Relation to Severity of Diphtheria. R. A. Q. O'Meara.—p. 317.
Differential Leukocyte Count. R. G. S. MacGregor, W. Richards and G. L. Loh.—p. 337.
Hypertension Following Thrombosis of Renal Veins. C. B. Perry and A. L. Taylor.—p. 369.
Aneurysm of Great Vein of Galen Causing Internal Hydrocephalus: Report of Two Cases. Dorothy S. Russell and S. Nevin.—p. 375.
Spontaneous Uterine and Mammary Tumors in Rabbit. H. Burrows.—p. 385.
Further Observations on Living Vaccinia Virus. K. B. Eisenberg-Merling.—p. 391.
Capsulation of Hemolytic Streptococci in Relation to Colony Formation. J. E. Morison.—p. 401.
Excretion of Hemeglobin, with Special Reference to "Transfusion" Kidney. S. De Navasquez.—p. 413.
Antigenic Structure of Organisms of Genus *Listerella*. J. S. Paterson.—p. 427.
Experimental Infection of Chick Embryo with Organisms of Genus *Listerella*. J. S. Paterson.—p. 437.

Composition of Diphtheria Toxin and the Severity of Diphtheria.—According to O'Meara, the hypertoxic type of diphtheria, that is with toxemia caused by the grave type of organism, as it occurs in the human being may be reproduced

in the guinea pig by a combination of Park-Williams number 8 toxin and bacteria-free preparations of grave strains. However, either alone failed to reproduce it. It is deduced that diphtheria toxin has two components provisionally called substance A and substance B. The Park-Williams toxin appears to contain a high proportion of substance A, and the toxin produced by gravis strains was found to contain a high proportion of substance B, in relation to the other substance. Ehrlich's phenomenon, avidity, the Danyasz phenomenon and the failure of toxin-antitoxin titrations to follow a law of multiple proportions can all be readily explained on the hypothesis that exotoxins are composed of two antigenically distinct substances giving rise to two distinct antibodies which together endow an immune serum with its antitoxic properties. Immunity to diphtheria would be not so much a question of the amount of antitoxin in the body as of its quality, in part explaining the occasional failure of artificial immunization. Organisms which produce toxin containing excess of substance B will be able to cause diphtheria in those who are apparently immune as judged by the presence of antitoxin in their blood. This result may not be achieved in the guinea pig owing to its high natural resistance to substance B, but it is not infrequent in the human being. Belief in the efficacy of the Schick test as a means of detecting immunity to diphtheria has recently been severely shaken. It is not difficult to imagine persons with a sufficient quantity of antibody to one of the constituents of diphtheria toxin (presumably substance B) in their blood to render them immune who would nonetheless be frankly Schick-positive, and others with antibody to the other constituent who would be Schick-negative but would not possess sufficient immunity to substance B to protect them from a natural infection.

Lancet, London

2:673-706 (Nov. 30) 1940

Traumatic Hemothorax. F. R. Edwards and H. M. Davies.—p. 673.
Anesthesia in Chest Injuries. J. Halton.—p. 675.
Accidental Acute Carbon Monoxide Poisoning. J. McMichael and H. D. Ruskin.—p. 677.
Leukocyte Count in Rubella. M. Hynes.—p. 679.
Modified Flow Meters for Anesthetic Gases. E. A. Pask.—p. 680.
Chemotherapeutic Investigations on Virus of Lymphogranuloma Venereum. G. M. Findlay.—p. 682.
Sneezing for Carbuncles and Boils. W. I. de C. Wheeler.—p. 683.
Cryptogenic Pneumococcal Septicemia: Failure of Sulfapyridine. R. P. A. Rigg and R. T. Cooke.—p. 683.
Menorrhagia Due to Essential Thrombocytopenia. L. Snaith.—p. 684.

Medical Journal of Australia, Sydney

2:521-554 (Nov. 23) 1940

Clinical Survey of Nine Cases of Encephalomyelitis in Association with Measles. M. E. Chinner.—p. 526.
Effect of Glucose on Competitors in Sprint Swimming Races. F. S. Cotton.—p. 530.
Treatment of Fracture or Dislocation of Cervical Vertebrae. R. D. Wright and J. Wunderly.—p. 532.
Experiences in High Ligation and Injection Treatment of Varicose Veins. N. Wyndham.—p. 534.

Practitioner, London

145:373-436 (Dec.) 1940

Modern Treatment of Anemia. W. E. Hume.—p. 373.
Treatment of Hemorrhagic Diseases. J. F. Wilkinson.—p. 382.
Blood Transfusion. P. N. Pantou.—p. 389.
Technic of Simple Blood Examinations and Methods for Collection of Blood. C. J. C. Britton.—p. 395.
Explosion Injuries of Ear. D. H. Craig.—p. 400.
Abdominal Injuries and Wounds. V. Z. Cope.—p. 405.
Treatment of Emphysema and Its Complications. F. G. Chandler.—p. 411.
Some Uses of Gentian Violet Application. E. W. P. Thomas.—p. 419.
Modern Therapeutics: XVIII. Counterirritation and Counterirritants. E. J. Wayne.—p. 422.

South African Medical Journal, Cape Town

14:411-430 (Nov. 9) 1940

Irish Recollections of Fifty Years Ago—Mainly Medical. H. C. Martin.—p. 413.
Hypothalamus. A. L. McGregor.—p. 415.
Therapeutic Methods in Osteomyelitis and Other Septic Wounds. H. O. Mennig.—p. 421.
South African Natives and Vitamin Deficiency. F. G. Cawston.—p. 423.

Presse Médicale, Paris

48:913-928 (Nov. 19) 1940

- *Congenital Gas Cysts of Lung and Emphysema Due to Bronchial Obstruction in Children. R. Debré, M. Lamy and J. Marie.—p. 913.
 Bone Puzzle in Syndactylism of Middle and Ring Finger: Case. A. Mouchet.—p. 917.
 Observations of Early Microscopic Modifications Secondary to Biliary Derivation. J. Verne and J.-M. Verne.—p. 918.
 Cure of Pus Effusion in Inefficacious Pneumothorax and Partial Thoracoplasty. J. Rolland and N. G. Tsoutsis.—p. 922.
 Myometrectomy: New Technic for Treatment of Uterine Myoma. C. R. Cirio.—p. 925.

Congenital Pulmonary Gas Cysts and Obstructive Emphysema in Children.—Two criteria are stressed by Debré and his associates for the differential diagnosis of congenital lung cysts and obstructive emphysema in children. The one concerns the evolution of the disease, the other the actual discovery of the cause of bronchial obstruction. The observation of a gaseous pocket in an area previously observed to be normal indicates obstructive emphysema. The most significant evidence consists in the disappearance of structural outline in the film. Where vesicular emphysema is suspected, stratigraphic verification needs to be made. However, the argument from disappearance may not always be so conclusive because the exact conditions of the disease and the delay involved, for both interlobular and vesicular emphysema, can be fixed only with difficulty. On the other hand, atelectasis (antecedent, associated or subsequent) is evidence of total and valvular obstruction and indicates an acquired lesion. The determination of a foreign body, a tumor growth or an acute pulmonary disorder obviously clinches the diagnosis of obstructive emphysema. Clinical observations, the roentgen rays, the use of a radiopaque medium and bronchoscopic examinations are cooperatively valid aids. Anatomic diagnosis presents similar diagnostic difficulties. In some cases the presence of cartilage, smooth fibers or stratified, ciliated epithelium reveals the congenital character of the lesion. The anatomic diagnostic difficulties may be further enhanced by the presence of vesicles of a secondary emphysema in congenital cysts. In many cases diagnosis may be long delayed because no roentgenograms were made before pathologic signs manifested themselves, because of the impossibility of proving a cause of bronchial obstruction and because of the persistence of the image in the roentgenogram.

Monatsschrift für Geburtshilfe und Gynäkologie, Basel

111:121-248 (Oct.) 1940. Partial Index

- Investigations on Body Temperature of Women in Correlation to Phases of Genital Cycle. Ursula Vollmann.—p. 121.
 Follicular Persistence, a Constitutional Malady with (Incomplete?) Dominant Inheritance: Preliminary Report. J. Lövet.—p. 154.
 *Cicatrical Endometrioses. H. H. Wespi and M. Kletzhändler.—p. 169.
 Treatment of Cancer of Vulva. E. Held.—p. 195.

Cicatrical Endometrioses.—According to Wespi and Kletzhändler, 73 women with endometriosis in a laparotomy scar had to undergo operation for this condition at one Zurich clinic in the course of sixteen years. The number is enormous when it is considered that world literature reports only 390 similar cases. In 5 of the 73, cesarean section had preceded the development of the cicatrical endometriosis and in the other 68 cases it followed abdominal interruption of pregnancy. The interval between the causal operation and the first pains resulting from endometriosis was on the average one and six-tenths years. In most of the cases, symptoms developed in the course of the first two years after the operation but rarely immediately after. The authors regard implantation of parts of endometrium into the laparotomy wound as the only possible explanation for the high incidence of cicatrical endometriosis as well as for its localization in the angles of the wound. The thought that implantation of parts of endometrium during an operation might be the cause of cicatrical endometriosis has been expressed by other observers. Another proof of surgical implantation is furnished by the fact that cicatrical endometriosis can be prevented by a surgical technic which carefully avoids transplantation of uterine mucosa into the laparotomy wound. The authors describe such a technic which has reduced the incidence of cicatrical endometriosis to about one fourth.

Gann, Tokyo

34:77-214 (June) 1940. Partial Index

- *Renal Sarcoma in a Seven Month Fetus. K. Muto.—p. 102.
 *The Changes in the Liver of the Rat Caused by 4-Dimethylaminobenzene-1-Azo-1-Naphthalene, and Related Compounds. R. Kinoshita.—p. 165.

Renal Sarcoma in a Seven Month Fetus.—A case of congenital leiomyoma arising in the right kidney in a seven month fetus delivered by artificial induction of labor in a 23 year old woman is reported by Muto. Except for distention of the abdomen, which was moderately pronounced, the external appearance of the fetus was normal, the body length being 34 cm. and the weight 1,010 Gm. When the abdominal cavity was opened, a tumor about the size of a hen's egg originating from the right kidney and covered with the peritoneal membrane was noted. Microscopic examination revealed that the tumor was composed of elongated or spindle-shaped cells scant in cytoplasm; the nuclear chromatin was moderate in amount and presented a uniformly granular arrangement, with only occasionally visible nucleoli. Mitotic figures were frequent. Although some of the cells contained occasional vacuoles, no excess glycogen was demonstrated (formaldehyde fixation). There was a moderate amount of connective tissue fibers between the tumor cells. This type of intra-uterine tumor is relatively rare, since the literature reveals only two similar cases—one described by Kästner (1921), also occurring in a seven month fetus, and another in a newborn infant, as reported by Lubarsch (1925).

Changes in Rat Liver Due to 4-Dimethylaminobenzene and Related Compounds.—Since the discovery by Kinoshita of the carcinogenic effect of 4-dimethylaminobenzene on the liver of the rat, whether fed by mouth or injected subcutaneously, further investigations have been carried out as to the possibilities of production of either cancerous or precancerous changes in this organ by other related compounds. The object of these researches was primarily to ascertain the radical essential to the carcinogenic properties of these organic compounds. The results of observations are summarized in this report. 1. Hydro-azo compound. 4-Dimethylaminobenzene in the animal organism can be reduced into 4-dimethylaminohydroazobenzene, which in turn will be decomposed into dimethyl-p-phenyldiamine and aniline. The latter products of reduction have already been shown to be noncarcinogenic to the rat. The intermediary product, the hydroazo compound prepared synthetically, was given to rats in daily doses of 4 mg. dissolved in olive oil and a little chloroform, for two hundred days with entirely negative results. 2. Sulfodimethylamino compound. A synthetic preparation of 4-sulfodimethylaminobenzene failed to produce any significant changes in the liver of the rat. 3. Naphthalene compound. 2-Methylbenzene-1-azo-1:2-oxy-naphthalene likewise was found ineffective in carcinogenesis, but 4-dimethylaminobenzene-1-azo-1-naphthalene was capable of inducing an atypical bile duct adenoma with considerable fibrous proliferation. With 4-dimethylbenzene-1-2-naphthalene, however, the resulting changes consisted mostly of degeneration of the liver cells and some adenomatous hyperplasia in the gastric glands, with evidence of invasion into the muscularis. 4. Aldehyde and nitroso compounds. A one hundred and eighty day feeding experiment was undertaken, using p-dimethylaminobenzaldehyde, which gave evidence of producing cirrhotic changes in the liver; but in no case were carcinomatous changes observed. Likewise, p-nitrosodimethylaniline led only to degenerative changes in the liver. 2:4-dinitrophenol, fed in daily doses of 5 mg. per kilogram of body weight, produced loss in weight and death in a few weeks. The pituitary glands of these animals showed a considerable decrease in eosinophil cells; the thyroid glands became atrophic, many nuclei of the follicular epithelium were pyknotic, and the colloid either stained weakly or partially disappeared. The animals which survived showed similar changes in the thyroids, but the pituitary eosinophils were increased. The adipose tissue became abundant. No significant changes were noted in the liver. 5. Nonsaponifiable liver fraction. Suggested by the experiments of Schabad, a nonsaponifiable liver fraction was prepared from the organ of a patient who died of carcinoma of the stomach. In one case, daily subcutaneous injections in mice resulted in the development of spindle-shaped sarcoma at the site of injection.

THE STUDENT SECTION

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Devoted to the Educational Interests and Welfare of Medical Students, Interns and Residents in Hospitals

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The Health of College Students and National Defense

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MINNEAPOLIS

At the time of our last annual meeting one year ago few if any of us had the vision to see the far-reaching effects which the European war would have on our American way of life. During these past twelve months we have witnessed in our country the passage of the first selective service law in peace time. The young men in the country have had their draft numbers assigned to them, and one group has already been called to military service.

The first hurdle to be passed by these young men called for army service is the physical examination. In 1917 and 1918 the United States Army rejected as physically unfit approximately 30 per cent of the young men who were drafted for military service. The question which is being asked today is: Are the young men who will be drafted now any healthier than those were twenty-two years ago? The answer to this question is one which will be of particular interest to all who have been engaged in student health work and other fields of health education during the past twenty-five years.

The high percentage of young men found unfit for military service in 1917 and 1918 gave great impetus to preventive medical work in this country. The development of college health work was greatly stimulated by these findings. Since the majority of physical defects found on the men excluded from army service were preventable in nature, it seemed obvious that, with some provision for the early detection of such physical defects and for their correction, it would be possible to prevent such a large proportion of our young people from acquiring these physical handicaps.

However uneasy we may be about the world situation and however earnestly we may wish to keep the peace in our country, the physical examination of several million young men offers an unprecedented opportunity to gauge the progress which has been made in health

conservation. Incomplete and scattered data for volunteers in the present national crisis indicate that the percentage rejected for physical defects is approximately the same as in 1917 and 1918. The Metropolitan Life Insurance Company thinks, however, that far fewer serious impairments will be found among the young men of 1940 than among those of 1917. Whether or not this is true will be determined only when the results of the physical examinations of large numbers of the drafted men are made available. The progress which has been made in the control of tuberculosis, syphilis, rheumatic heart disease and certain of the communicable diseases which leave disabling sequelae should be reflected in the physical fitness of the present generation of young people.

Although the college group does not represent a true cross section of the young men of draft age, still a college population in a state university can no longer be said to be highly selective. Unemployment among youth today and scholarships and federal aid have put into the college many youths who formerly had no opportunities for higher education. It seemed of interest, therefore, to take a sampling of young men entering a state university and to compare the results on physical examination with the physical standards of the selective service act.

According to the physical standards under the selective service act, the examinees will be classified into three categories:

Class 1-A: Those physically qualified for general active military service.

Class 1-B: Those who are physically unfit for general active military service but fit for special and limited military service.

Class 4: Those physically unfit for any military service.

At the present time only men assigned to class 1-A will be inducted into the army. In brief the regulations say:

The registrant must be able to see well; have comparatively good hearing; have a heart able to withstand

Presidential address, read before the twenty-first annual meeting of the American Student Health Association, Ann Arbor, Mich., Dec. 27, 1940.

the stress of physical exertion; be intelligent enough to understand and execute military maneuvers, obey commands, and protect himself; and be able to transport himself by walking as the exigencies of military life may demand. Examining physicians will accordingly so construe these standards that the objective stated above may be realized.

An unselected sample of one thousand physical examination records of young men entering the University of Minnesota in the fall of 1939-1940 was studied. Of the group of one thousand, ninety-two, or 9.2 per cent, would be assigned to class 4, those physically unfit for any military service, while ninety-four, or 9.4 per cent, would be assigned to class 1-B, those who are physically unfit for general active military service but fit for special and limited military service. Thus a total of 18.6 per cent of these university students would be rejected for active military service at the present time. The reasons for the disabilities in this group bear out the prediction of the Metropolitan Life Insurance Company that the majority rejected are due to minor physical disabilities. Of the ninety-two students whose physical examinations revealed them to be unfit for any military service, fifty were so classed because of underweight according to the selective service standards. It is possible that a number of these young men would be accepted for military service, as the examining boards have been given a good deal of discretion in matters of height and weight. If, in the opinion of the board, proper food and training will make a man capable of giving service, he may be inducted into the service. It is probable also that this number rejected for underweight is higher than would actually occur in university men of draft age, as the majority of the group were under 21 years of age. Diehl's studies showed that college men increased in weight with age and the percentage of underweight students decreased as the age of the students rose.

The next most common physical defect found in this group was a rapid heart rate. According to the physical standards for selective service, a heart rate of 100 or over per minute, when this is proved to be persistent in the recumbent posture and on observation and reexamination over a sufficient period of time, disqualifies a man for any military service. In the thousand university students examined there were twenty-eight who had pulse rates of 100 or over on repeated examinations. In none of these could any organic cause for the tachycardia be found. It is of interest also that in this sampling there were no students with organic disease of the heart.

Three of the thousand students had visual defects of such severity that they would be excluded from military service. There were two with active pulmonary tuberculosis and

two with diabetes, both of which are causes for rejection. One student with duodenal ulcer and one with syphilis are also included in this group. There were only five of the thousand with flat feet which were disabling and which would therefore put them in the group unfit for any military service. One member of the group was disqualified for any military service because of a severe scoliosis.

In a recent issue of *THE JOURNAL* there was a report¹ on the physical examinations of a group of volunteers in New York. Of those who were rejected for military service, 23 per cent were rejected because of dental defects. It is significant that in this group of entering university students there was not one whose teeth were in such condition that he would be put in class 4, and only one student who would be classified as 1-B. The mouths of all the rest were in such condition that they would have been classified as 1-A.

Those students whose physical examinations on entrance to the university were such that, according to the physical standards for selective service, they would fall into class 1-B, as fit for special and limited military service, numbered ninety-four of the thousand. The largest percentage of this group was so classified because of nose and throat defects. There were forty-four who were classed as 1-B, according to the selective service standard, because of nose and throat defects. Seventeen of these had a deviated septum with obstruction to breathing, fifteen had severe hay fever and twelve a chronic sinusitis. Next in importance were defects of hearing. Fourteen of the group had a hearing loss of 50 or more decibels in both ears when tested with the audiometer. The selective service standards do not require the use of the audiometer to determine hearing loss, but rather the spoken voice at 20 feet. Since there have been no standards by which one might translate audiometer readings to compare with the method of testing with the spoken voice, the hearing loss of 50 decibels in both ears has been arbitrarily selected. Using this, however, there were fourteen with a hearing loss sufficient to classify them for limited service.

There were eleven who were classified for limited service because of asthma and eight because of hernia. Twelve of the group were put into class 1-B because of stuttering. There was only one student who was classed for limited service because of a visual defect. It is obvious that in this group of university students the majority who would be excluded or limited, as far as military service is concerned, would be so classified because of relatively minor physical defects.

1. Leone, G. E.: Causes of Rejection for Entrance into the Regular Army Due to Physical Defects, *J.A.M.A.* 115:1283 (Oct. 12) 1940.

Whether these university students are in better physical condition than a true sampling of the general population is not known. The observations in this comparatively small group would indicate that such is the case. While students in a large state university such as the University of Minnesota probably represent a fairly good cross section of the economic and social groups in the area, there is some selection on the basis of intelligence. One would expect this factor of intelligence to have an effect on the health habits and health practices of this group of college students. Not until the results of the examinations of thousands of young men from all sections of the country and from all social, economic, occupational and intellectual levels are available can many questions which come to mind be answered.

Never before have those working in the field of health education and preventive medicine had such an opportunity as the selective service act offers to evaluate the results of public health measures of the past twenty years. Some disappointments may be in store for us, but such scanty preliminary evidence as I have presented indicates that some progress has been made. Likewise such information presents a challenge to all engaged in health work from the elementary school through the college. It seems reasonable to assume that the results of the physical examinations of young men drafted in 1940 will, as in 1918, cause a renewed interest in preventive medicine and health education and give us valuable information which will guide in the development of the public health program of the future.

Digests and Reviews

POOR BUT PERTINENT

Editorial published in the Journal of the Oklahoma State Medical Association, January 1941.

In this hazardous period of social, economic and political instability, which is threatening the accepted foundations of life, including the time-honored principles of medical practice, it is well for us to continue voluntary care of the poor. This can be accomplished either through individual or organized effort. Accumulated experience indicates that individual care is not wholly without material reward.

Dr. Daniel Drake, one of the great in the history of medicine, once said to Dr. Lunsford P. Yandall of Louisville, Kentucky: "I have never seen a great and permanent practice, the foundations of which were not laid in the hearts of the poor. Therefore cultivate the poor. If you need another, though sordid reason, the poor of today are the rich of tomorrow in this country. The poor will be the most grateful of all your patients. Lend a willing ear to all their calls."

In Abraham Flexner's autobiography, *I Remember*, there is a statement suggesting that Dr. Yandall may have passed this advice on to his illustrious sons. Dr. Flexner says that when he was a boy one of them treated him for a severe and obscure illness and that "his remuneration was a weekly loaf of mother's bread, which I regularly used to carry to his home."

Early in his career Benjamin Rush said the poor were his best patients because "God is their paymaster." At the age of 68, on his deathbed, he said to his son: "Be indulgent to the poor." Though a century has passed,

we find the following in the Life of Chevalier Jackson. Dr. W. W. Keen is quoted as having said "Chevalier Jackson's skill was acquired by a lifetime of work with the poor." No man could wish for a greater reward than Dr. Jackson's skill and the realization of what it has meant to humanity.

Returning to the sordid side, it may be pointed out that in the eighteenth century Fothergill, whose annual income was \$125,000, said "I climbed into the pockets of the rich over the backs of the poor."

The author recalls that one of his professors, a brilliant teacher and busy practitioner, attributed his high professional rating among the well-to-do on Fourth Street to the influence of his washerwomen and nursemaid patients in poverty row on the water front.

In his remarkable work on surgery, Henry of Moudeville made the following statement: "If you have operated conscientiously on the rich for a proper fee, and on the poor for charity, you need not play the monk, nor make pilgrimages for your soul."

Let us pray for the preservation of personal freedom in the choice of a physician. It is this that keeps every good doctor's door open to the poor. The doctor needs the chastening influence of their presence, and they need the sense of security and independence which a free choice helps to preserve. In time of trouble there is something intensely vital about this intimate relationship. No doubt this is due to the fact that the true physician is genuinely interested in his patient and does what he can to mend broken bodies without regard to religious faith, moral, social or financial position.

THE SCIENCE AND THE ART OF MEDICAL PRACTICE

A talk before the cardiac clinics by Dr. Frederick A. Willius, Rochester, Minn. Slightly condensed from Proceedings of the Staff Meetings of the Mayo Clinic, Oct. 9, 1910.

The practice of medicine contains two important ingredients, the science and the art of medicine, which must be so subtly blended that a mixture is created that does not predominate in one constituent at the expense of the other.

THE SCIENTIFIC ASPECT

The physician begins his long period of training chiefly under the influence of the science of medicine, including the acquisition of the basic sciences such as anatomy, physiology, chemistry; later the clinical branches of medicine are undertaken, with the result that he is literally stuffed with facts which require time for their proper digestion. Throughout this period little time remains for teaching that equally important ingredient the art of medicine. Frequently no attempt is made to teach this important subject, the assumption prevailing that this finesse will be acquired with experience. This omission is further fostered by the fact that, in a great measure, undergraduate teaching is carried out in charity hospitals and dispensaries where the sick person frequently is a case rather than a patient. The result may be the brilliantly trained scientist who has not acquired the methods to utilize his knowledge to the best advantage, or the scientist with such an encyclopedic knowledge of uncorrelated facts that he is perpetually bewildered by the enormous extent of his knowledge.

THE ART OF MEDICINE

One would not decry the importance of the science of medicine, for obviously this forms the basis of the sage physician, and without a fundamental knowledge of the many branches of medical science he would not be a safe physician. However, the physician must know how to apply his scientific knowledge if it is to be an asset to him and it is at this point that we envision the portals of the art of medicine. The art of medicine comprises many considerations. The physician inevitably acquires a manner which on the one hand may inspire confidence, be pleasing to the patient and at all times exhibit courtesousness and sincerity of purpose or, on the other hand, by virtue of gruffness, obvious insincerity or impatience may create an unremedial impasse between the patient and himself.

The average patient has but little difficulty in appraising the sincerity of purpose of the physician. The physician must be dignified but

it is no longer necessary to assume a painful artificial guise. There was a stage in medical history when the silk hat and the bewhiskered face of so-called maturity were believed to be requisites of the well trained physician, but today no such parade enables us to hide our deficiencies.

THE INDIVIDUAL PATIENT

Every patient is a problem unto himself not only from the scientific aspects of diagnosis and treatment but likewise in the application of the art of management. Individuals differ from one another when they are well and these differences become greatly amplified when they are ill. Probably one of the most difficult feats for the young medico to master, and some never learn this important lesson, is the knowledge that the psychologic reactions of the sick person are apt to be disturbed; notably is this the case with individuals nervously afflicted. Thus, apparent stubbornness and what may appear to be unreasonable attitudes must not be countered with a stubborn, adamant attitude until cautious tact and diplomacy have been exhausted.

NATURE OF "INTUITION"

The physician must train himself to be a practical psychologist so that he may quickly fathom the unspoken reactions of the patient, which are frequently more outspoken than uttered words but which may entirely escape the unwary. It is important that this appraisal be instantly accomplished, for the ensuing procedure may be dictated by a fleeting impression. The ability to delve into the psychic reactions of the patient and often to anticipate unexpressed reactions is frequently referred to as intuition. It comprises no mystic powers but only the alert interpretation of subtle expressions, both uttered and unuttered. As the physician is usually the interrogator, he should always attempt to command this advantage. The approach to each patient necessitates a variation in technic and it is frequently important to engage the individual in general conversation before bluntly plunging into the presenting problem. Many times the alert physician obtains invaluable clues regarding the patient before a word of the individual's physical complaint has been stated.

The physician's knowledge of human nature must be profound. He must recognize the intellectual, critical individual; the emotional, erratic type; the stolid, reluctant personality; the mentally inadequate as well as the ignorant. These are but a sampling of the human problems that constantly confront the physician, who must be prepared to meet these innumerable problems with correspondingly innumerable variations in method.

APPLICATION OF KNOWLEDGE

The scientific physician who does not interest himself in or acquire the subtleties of the art invariably fails in the full availment of his skill and talents to the patient. The purely scientific approach to a medical problem may suffice in many instances but it is just as likely to be thwarted unless applied in a practical, humane and understanding manner, modified if necessary to meet the requirements of the individual. One sees too many frustrations resulting from the inflexible routine of strictly scientific endeavor. There is the physician so trained in a given specialty that he remains aware only of his limited sphere and finds the ant hill instead of the mountain which glaringly rises before him. We all know that profound scientist who possesses all the answers to the store of medical questions, who has passed brilliant examinations and yet who fails miserably as a physician because his knowledge is at loose ends and cannot be correlated when prompt correlation is imperative. When we require the services of a physician for our families we would not choose this type of ultrascientist but rather the inspiring level-headed practitioner, whose experience has endowed him not only with the science, but amply with the art of medicine.

It is regrettable that the student is too often under the influence of the ultrascientist who remains cloistered in an environment that recognizes little of the art of medicine. The passing generation of teachers possessed the art of medicine to a generous degree. The individual, rather than his disease, must be correlated with the individual, the patient must be regarded as a human being and not as a nondescript case, and the human side of the problem must be stressed. Until this concept is more universally adopted, our medical schools will turn out technicians rather than well equipped physicians. This hazard has never been greater than it is today, owing to the modern trend of medical mechanization. This is one reason why the young physician yearns for metropolitan practice so that he may live and work in the shadows of a laboratory, which he has been led to believe is indispensable. It is true that the laboratory is important, but when these methods are stressed beyond their practical application and supersede the physician's first line of defense, namely physical diagnosis, then I am certain that we have lost the primary objective of a truly noble profession.

There is no reason why the assets of the various methods of medical appraisal and practice cannot be practically combined so that the science and the art of medicine can walk side by side. There is little doubt that in the routine practice of medicine more triumphs result from the well blended science and art of medicine than from science alone.

WHY I WANT TO BE A DOCTOR

At the beginning of the school year 1939-1940 Dr. Waller S. Leathers, the dean, requested the members of the first year class at Vanderbilt University School of Medicine, Nashville, to prepare an essay on the subject "Why I Want to Be a Doctor." In response to this request fifty-two essays were turned in and analyzed from the point of view as to how or in what way the following factors influenced each individual in choosing medicine as a profession:

1. Family, including members who are or were doctors.
2. Environment or natural bent.
3. Profession other than family.
4. Subjective.
5. Miscellaneous.

Under the heading of objective reasons twenty-seven students were influenced by the example of professional relatives, twelve by nonprofessional influence, mother, father and others. Eighteen students reached their decision independent of any stated personal example or influence. Two made the decision in spite of discouragement from their parents.

The subjective components were broken down into eight main headings:

1. Early inherent desire; thirteen mentioned this factor.
2. Interest in science courses; this affected twenty-two decisions. Concrete examples mentioned were "love of physics" and interest in psychology and anthropology.
3. Desire for happiness, cited by ten.
4. Desire for economic security, expressed by thirteen.
5. Desire for esteem of others; fourteen gave this reason. Parents and members of medical profession are given as examples.
6. Curiosity, a factor in three decisions.
7. Desire for knowledge influenced fifteen. "Spirit of adventure," "challenge of the difficult" and "field of research" are given as specific motives.
8. Desire to serve humanity, a prevalent factor, influenced thirty-six decisions. Five mentioned an interest in preventive medicine and public health. One named Christian service as a motive.

The striking feature noted in these discourses is the unanimity in those factors considered as of major importance both by students and by the analyst, Dr. Beverly Douglas. The desire to serve humanity was expressed by thirty-six members as a factor strongly influencing their decision. Each of the number discusses this reason at some length, and in the discussions the choice of words and syntactical methods reveal an underlying similarity of basic motive which is astonishing. The decisive influence of family, especially professional family, is also clearly brought out. It would be of interest to be able to compare this analysis of the present group with that of a similar group in other medical schools in various parts of the country.

THE TUTORIAL SYSTEM IN HARVARD MEDICAL SCHOOL

Abstract of an article by Dr. Walter Bauer, published in the Journal of the Association of American Medical Colleges, March 1940.

Twenty years ago Dr. David L. Edsall introduced to Harvard Medical School an innovation in methods of teaching which was a modified form of the Oxford tutorial system. He observed that in our efforts to improve mediocrity we wasted some the finest material in each class and contended that we should allow for the fullest development of the exceptional student as well as the mediocre one. That some medical students do not think was considered the result of the faculty's tendency to tell students what to do and what to think. Many of the products of this system of education are intelligent, but they lack the boldness necessary for departure from the routine. Thus the average student soon tends to believe only what he reads. Edsall thought that the tutorial system might remedy these defects in education.

The system as originally outlined was to allow four tutors, one each in physiology, pathology, medicine and surgery. The students chosen show evidence of superior capacity. No one tutor attempts to direct the work of each man in his group but places each student in intimate contact with the particular member of the faculty best fitted for his needs. The purpose of the tutorial system is to send into medicine men with scientifically trained minds. The majority of men exposed to this system practice medicine. There are rarely more than fifteen men in any one class assigned to tutorial work.

The system has demonstrated that, if given a suitable problem, achievement can be made by a determined student in the time available in his second and third years. Organized series of lectures or conferences or any other form of group instruction are avoided, as the regular curriculum affords an excess of this sort of intellectual exercise. Each student is given a problem to investigate. The tutorial students are required to take the routine medical curriculum throughout the first three years. In the fourth year they are allowed a period of from four to five months for this special work with a member of the faculty.

Some of the men do continuous research along a specific line throughout their four years in medical school. In most instances the students electing tutorial work anticipate most of the prescribed regular work by taking two or three months of summer work. It is impressed on the student that the laboratory is not a sanctuary for the worship of authorities but a free dwelling for students conscious of the faults and the virtues of those who surround them.

Sufficient time has not elapsed to determine the fate of all students subjected to this type

of teaching. It seems fair to examine the records of sixty-two men from the classes of 1925 to 1929. Three have died, thirty-four graduated with honors, fourteen are in full-time work; the remaining twenty men are engaged in practice. Of the twenty-five men who graduated with a grade of C, seven are in full-time work, eighteen are practicing medicine. The results seem to suggest (1) that medical students can engage in special extracurricular work along one line without jeopardizing their regular work and (2) that a large percentage of men exposed to this type of training contribute to the advancement of medicine. Some have stated that the most important decision made in medical school was that they should do what they had always thought wrong; i. e., depart from the schedule and take free elective work in their fourth year.

Men who practice medicine may advance medical science as effectively as does the laboratory monk. The development of such traits in the practitioner of medicine should in no way interfere with his practice of the art of medicine.

THE CLINICAL PATHOLOGIST

Abstract of presidential address by L. W. Larson before the American Society of Clinical Pathologists and published in the American Journal of Clinical Pathology, July 1940.

Ten years ago there was already a tendency to differentiate between the pathologist and the clinical pathologist. This development of a specialty within a specialty is not peculiar to our branch of the practice of medicine; some internists have become cardiologists and some surgeons have become orthopedic surgeons. Clinical pathologists began as individual units. Today the clinical pathologists who depend primarily on a so-called private or commercial laboratory for a livelihood are few. The increasing knowledge of the laboratory sciences on the part of clinicians, the development of hospital laboratories which have encouraged clinicians to send them work, and the ever increasing scope of tax supported laboratories in city, county, state and nation have driven practically all our members to the shelter of a hospital laboratory. This has created serious problems, for too many hospital managements have attempted to derive a handsome profit from the clinical laboratory at the expense of the pathologist. Even the many varieties of hospital insurance plans have created a grave situation for the clinical pathologist in that he has been faced with the problem of contributing a professional service for an institution which is not authorized by law to practice medicine. In most instances he has not been remunerated for extra burdens thrust on him as a result of these insurance plans.

One of the gravest problems confronting the clinical pathologist is that of the supertrained technologist. We are the creators of this situation, because we pioneered the movement to standardize schools for medical technologists and raised the requirements to such a level that only those with adequate college training in the fundamental sciences and thorough training in a clinical laboratory under the direct supervision of a competent clinical pathologist can even qualify for the examination given by our board of registry. As a result there are about 6,000 medical technologists registered today, each one of whom is presumably competent to perform all laboratory tests. Are we justified in criticizing the well trained clinician who maintains his own laboratory, hires a registered technologist to do the work and interprets the results himself? We may question the ability of most clinicians to do these things, but it is useless to doubt their right to think that they can do them. It will be better for us to look for new horizons or to concentrate on those which we have had with us daily but have rarely taken the time to observe.

The younger men and women have been well instructed in this field, especially those who have spent from three to five years preparing themselves for the practice of a specialty. Except in the large hospitals or clinics, only one part of laboratory diagnosis remains which demands special training and experience, and that is the field of pathologic anatomy. Our society has realized this fact by fostering a yearly seminar in tumor diagnosis. These seminars have impressed our clinical brethren to see in them an effort to standardize classification

of tumors and other pathologic changes and to render to him and his patient a competent opinion. The field is not restricted to surgical pathology but includes postmortem pathology, whereby the ravages of disease are viewed in the light of clinical symptoms and observations.

Hematology also seems to be a field remaining for the clinical pathologist, although more and more clinical hematologists are being trained. The majority of clinicians know little of the abnormal blood cells seen in many blood films. Few technologists are so well trained that they can accurately diagnose the leukemias, to say nothing of the difficulties encountered in leukemoid reactions, bone marrow depression or dysfunction due to drugs. Our society should continue to sponsor the excellent hematology seminars it has conducted in various parts of the country during recent years, for hematology still remains a pillar on which the clinical pathologist can lean for his economic security.

In addition to being well versed in the usual laboratory procedures and to being a specialist in pathologic anatomy and hematology, I believe that the clinical pathologist must learn more about, and be more interested in, the clinical patient. If he is able to take a good clinical history and perform a routine physical examination, he will soon be the most popular consultant on the staff, because his knowledge of pathology will often enable him to interpret clinical signs and symptoms when his clinical brother cannot. He will then be a "consulting physician" in clinical pathology. I urge all of you to develop into true physicians, so that you will no longer be called by such omens as "the laboratory man."

Correspondence

DR. GEORGE GOODFELLOW OF TOMBSTONE

Jan. 28, 1941.

To the Editor:—In the Student Section, January 25, page 352, is a paragraph about Dr. George Goodfellow of Tombstone, Ariz. I would like to add to that.

In 1889-1891, while he was practicing at Tombstone, I was a contract surgeon at Bisbee, 28 miles away. During that time we not infrequently operated together, and I went to Tombstone a number of times to assist him in operations. I can testify to the fact that he was a rapid and a skilful surgeon, many times

doing major operations alone. I am certain that he did the first operation for the removal of a prostate, which operation was done in Tucson, and my recollection was confirmed last fall in a conversation I had with Dr. Jeremiah Metzger of Tucson. I remember one case of his in which he removed a spleen because of a gunshot wound, which operation he did entirely alone; undoubtedly the patient would have lived had he been able to see the patient a little sooner but the patient had to ride 8 miles and was white from loss of blood. I feel that one cannot say too much for him as a great surgeon.

THOMAS DARLINGTON, M.D., New York.

DO YOU KNOW WHAT PHYSICIAN—

1. Attended George Washington in his last illness?

2. Was one of the original signers of the Declaration of Independence?

3. Performed the first mastoidectomy in the United States?

4. Wrote the first work in America on skin diseases?

The answers are on page 796

Medical College News

Medical schools, hospitals and individuals will confer a favor by sending to these headquarters original contributions, reviews and news items for consideration for publication in the Student Section.

Interns' Case Report Contest

The Allegheny County Medical Society in Pittsburgh is conducting its annual case report contest for interns of the hospitals of Allegheny County. The rules of the contest specify that manuscripts shall be mailed to the secretary, Allegheny County Medical Society, Jenkins Arcade, Pittsburgh, prior to April 1. Other details were given in the announcements sent to each intern. This contest, which has been carried on for many years, is for the best case report submitted and it is intended to be an incentive for interns completing their medical training, giving them experience in the correlation of clinic material and in medical composition and writing.

Postgraduate Students at Columbia

During the year ending June 30, 1940, Columbia University College of Physicians and Surgeons, New York, offered 249 postgraduate courses in thirteen hospitals, which were attended by 1,061 physicians from forty-three states, Alaska, Hawaii, Philippine Islands, Puerto Rico and twenty-three foreign countries. The dean, Dr. Willard C. Rappleye, in his annual report says that in keeping with the trend to eliminate from general practice major surgical and other highly technical procedures, it is interesting to note that the majority of physicians taking a postgraduate course elected studies in the field of internal medicine.

Iowa

The following sophomores at the University of Iowa School of Medicine, Iowa City, were elected to Phi Beta Kappa, Dec. 16, 1940: John R. Beebe and Delbert M. and Elwood Buchman of Ottumwa; George F. Fieselman, of Garden Grove; John A. Hutch, of Cedar Rapids, and Gabriel T. Westly of Manly.

At the second student-faculty meeting of the year on January 14, Dr. H. R. Jenkinson, Iowa City, gave a talk illustrated with kodachrome slides on the subject "Wild Flowers of Iowa," including comments on the medicinal uses of some of these flowers. At the student-faculty meeting last November 12, Dr. Robert T. Tidrick, who spent a year as an intern in Cairo, Egypt, spoke on "A Comparison of Egyptian and American Patients."

Creighton Students Assigned to Summer Dispensary

In the summer of 1939 the students at Creighton University School of Medicine, Omaha, were required for the first time to put in six weeks in the summer dispensary, the senior class being divided into groups which rotate during the season. The number of patients visiting the dispensary during the year 1939 was 39,464. Recently the university erected a two story building, the first floor of which provides an addition to the medical dispensary, making room for special clinics, each completely equipped.

Indiana

Dr. Robert C. Badertscher, Indiana '40, who is now interning at Indiana University Medical Center, Indianapolis, has received an appointment for a three year residence in internal medicine at the Mayo Clinic, Rochester, Minn., and will take up his new work in July. Dr. Badertscher is the son of J. A. Badertscher, Ph.D., of the faculty of Indiana University School of Medicine.

Long Island's Freshman Class

The 100 freshmen at Long Island College of Medicine, Brooklyn, brings the total enrolment at the school at present to 371 students, the maximum number allowed under the present policy of the board of trustees being not more than 375. The freshman class comprises students from Connecticut, Maine, Massachusetts, New Jersey, New York, Tennessee and Vermont, and one foreign student, Abu T. Mehra, of Teheran, Iran. The officers of the freshman class, who will serve through the four year term, are George L. Breen, Pompton Plains, N. J., president; Alexander Garcia, Forest Hills, L. I., vice president; Margaret H. Doyle, Brooklyn, secretary, and Michael J. Hyland, Harrison, N. J., treasurer. The two student council members in the freshman class are Charles W. Kelly of Brooklyn and Mr. Mehra.

General Assemblies at Illinois

Each Wednesday at 1 p. m. the students and faculty at the University of Illinois College of Medicine, Chicago, conduct general assemblies. At the Dec. 4, 1940 assembly, Lt. Col. Charles G. Hutter, M.C., U. S. Army, discussed "Military Medicine"; Capt. Harold C. Lueth, "Medical Problems in Air Warfare," and Dr. R. G. Leland, director of the Bureau of Medical Economics of the American Medical Association, "Mobilization of Medical Forces." The program for the January 1 assembly was on the "Aspects of Medicine and Public Health in South America."

Oklahoma—Seniors Assist Draft Board

Members of the senior class of the University of Oklahoma School of Medicine, Oklahoma City, have been assisting the local draft board in that community by doing some of the laboratory work on the draftees. Six senior students, rotating daily, assist in this laboratory work.

Dr. Ernest Sachs, professor of clinical neurosurgery, Washington University School of Medicine, St. Louis, gave the annual LeRoy Long Memorial Lecture in the Auditorium of the University of Oklahoma School of Medicine, February 7, on "Surgery of Brain Tumors Today and Ten Years Ago." This lecture is sponsored by the local chapter of Phi Beta Pi and was founded in memory of Dr. LeRoy Long Sr., former dean of the medical school.

Scholarships for Papers on History of Endocrinology

The Association of Medical Students has announced a competition among medical students in the United States and Canada for the purpose of fostering interest in the subject of endocrinology and to encourage and aid able and gifted medical students. For this purpose the Schering Corporation will award one full year's and one half year's tuition in any medical school in these countries for the best papers on some aspect of the history of endocrinology. If the author of the winning paper is a senior, he will receive the cash equivalent of his tuition. The judges will be a committee of leading endocrinologists, and the award will be made at the next annual meeting of the Association of Medical Students in Chicago in December 1941. All students interested in this competition should communicate at once with the Committee on the Schering Award, c/o The Journal of the Association of Medical Students, 25 Madison Square, N., New York City.

Professor Dam Lectures at Western Reserve

Students, physicians and members of allied professions were invited to the Institute of Pathology at Western Reserve University, Cleveland, February 11, to hear a lecture by Prof. Henrik Dam, Biochemical Institute, University of Copenhagen, on vitamin K, which he discovered. Professor Dam has lectured in various cities in England, Sweden, Norway, Denmark, Holland and Germany; his lectures in the United States are under the auspices of the American-Scandinavian Foundation.

The DeWitt Sherman Hall at Buffalo

The late DeWitt Halsey Sherman, for many years professor of pediatrics at the University of Buffalo, bequeathed to the university a sum of money for the erection of a new medical building, and his widow, Jessica Anthony Sherman, has added to the sum sufficient to make the total about a half a million dollars. The will provides that if a building has been constructed by the time the funds become available, the money shall be placed in trust for the endowment of teaching. Dr. Sherman, a graduate of the University of Buffalo, died in February 1940.

Illinois Seniors Request Degrees in June

The entire senior class of the University of Illinois College of Medicine, Chicago, has petitioned the deans of the school requesting that the M.D. degree be awarded in June. Their action was prompted by the belief that the M.D. degree would qualify them to do medical work in case they were conscripted, and would give those who desire an opportunity to join the medical reserve corps. The *Illini Scope* points out that of all the medical schools in the country, only eleven still withhold the degree until the end of the fifth year. The reason for doing so was to assure that graduates would serve an internship. That function now has been taken over largely by the state licensing boards. Of more than 5,000 medical school graduates in 1940, it is said that only one man went directly from medical school into medical practice.

Women in Medicine

Since 1917 there have been fifty-five women graduates of Long Island College of Medicine and there are twenty-five women students at present at the school, ten of whom are in the freshman class. At the request of the faculty, the chairman of the Committee on Admissions sent a questionnaire to the thirty-four women who graduated during the years 1920-1935. Of the thirteen who replied, all took internships and are now in active practice. All are members of their county medical societies. Four are in general practice, two in obstetrics and gynecology, one in obstetrics and pediatrics, one in psychiatry and one in public health.

Annual "Follies" Provide Library Fund

The twelfth annual Medical Follies, presented Dec. 6, 1940 by seventy members of the junior class of Baylor University College of Medicine, Dallas, Texas, before an audience of 3,000 people, showed a net profit of more than \$4,000, most of which was turned over to the permanent library fund which, together with the contributions of the Baylor Alumni Association, amounts to about \$70,000. Construction of the new library has begun and it is expected to be completed in the spring of this year. The growth of the annual Follies of the junior class has been rapid. The first production was given in a small auditorium seating a few hundred, and the show was written for the entertainment of the student body and alumni. Since then

they have had to change to a larger auditorium three times to accommodate the patrons, and six years ago Dr. William W. Looney, of the department of anatomy and sponsor of the Follies, suggested the idea of establishing a permanent library fund with the profits as a nucleus. The success of the Follies is due in part to the cooperation of the alumni and, as our correspondent says, to the ever present curiosity of the average layman who wishes to know more about the private life of a physician, his problems, and the like. To satisfy curiosity, this group has written and presented "The Life of a Medical Student" and "The Problems of the Medical Profession." The medical students have not only written the dialogue but have acted and directed the plays. Student Charles L. Bloss, 3612 Worth Street, Dallas, Texas, will furnish additional information to any group of medical students who desire to undertake similar ventures.

Duke University

At the beginning of the winter quarter there were 239 medical students at Duke University School of Medicine, Durham, N. C., and 140 student nurses were enrolled. Laurence H. Snyder of Ohio State University College of Medicine, Columbus, is giving a series of lectures during January, February and March at Duke on medical genetics. At a meeting of the Duke Medical Society, January 14, Dr. Tinsley R. Harrison, professor of medicine at Bowman Gray Medical School of Wake Forest College, discussed hypertension.

National Board Questions in Obstetrics

Following are the questions used by the National Board of Medical Examiners in obstetrics and gynecology in part II of the examination held February 12-14, 1940. (Part II of the examination is given immediately after graduation from medical school.)

Answer any five questions: 1. Describe in detail the management of labor in a frank breech presentation. 2. Give the characteristic findings of intrauterine fetal death in the seventh month of pregnancy. 3. Is puerperal sepsis preventable? If so, indicate the preventable factors. 4. Name four laboratory procedures you would institute in the study of a case of sterile mating. 5. Describe the clinical manifestation of carcinoma of the cervix and give in detail the treatment and prognosis. 6. Give diagnosis, treatment and management of leiomyomata uteri in a young unmarried woman. 7. Give the treatment of uterine retro-flexio-version in (a) a nulliparous woman, (b) a multiparous woman.

Wisconsin State Board Questions

The following questions were given by the Wisconsin State Board of Examiners at the examination in Milwaukee, June 26, 1940:

MATERIA MEDICA

1. Name four common vitamins and give indications for use of same.
 2. Give indications for use of sulfapyridine—State precautions to be observed and give dose.
 3. Name principal alkaloid of belladonna—Give dose of same and at least three indications for its use.
 4. Give adult dose and therapeutic use of following drugs—
 - (a) Silver nitrate
 - (b) Codeine sulfate
 - (c) Ferrous chloride
 - (d) Nitroglycerin
 - (e) Tartar emelle
 5. (a) Name two respiratory stimulants—also dose of same. (b) Name two vasomotor depressants—also dose of same.
 6. Name three diuretics and give dose of each.
 7. Name five antiseptics and give their proper dilutions for surgical purposes.
 8. Give briefly the therapeutic use of—
 - (a) Sulfur preparations
 - (b) Mercury preparations
 - (c) Bismuth preparations
- Mention at least three forms of each with proper dose.

TOXICOLOGY

1. Give symptoms and treatment of nuphne poisoning.
2. Describe symptoms of hydrargyrium.
3. State symptoms and treatment of carbon monoxide poisoning.

Hospital Insurance for Students' Dependents at Georgia

A recent development at the University of Georgia School of Medicine is the inauguration of a plan of hospitalization insurance for the wives and children of medical students. Last year the administration of the medical college sponsored a hospitalization plan for the students, each student having paid \$2.50 for protection during the nine month term. The plan worked so well that the dean, Dr. G. Lombard Kelly, suggested extending it to the dependents of students. It is estimated that at least 15 per cent of the students are married, some of them having several children. The plan was presented to the student body and received unanimous approval. Now each married student is permitted to insure each of his dependents for a premium of \$2.50 for nine months. Obstetric cases are not included in the coverage.

The Hamman Society at Western Reserve

A group of twenty junior and senior students at Western Reserve University School of Medicine, Cleveland, are members of the Hamman Society, which was named in honor of the late Dr. Carl A. Hamman, formerly dean and professor of clinical surgery. At their meetings, the members present original papers and discuss diagnostic problems, with honorary faculty members acting as referees. The society held an open meeting during the last school year which was addressed by Dr. Paul W. Harrison, a medical missionary stationed in Arabia. The Hamman Society also gives a banquet annually to which all members of the faculty are invited.

Western Reserve Grows Its Own Digitalis

All the digitalis used in the hospitals affiliated with Western Reserve University School of Medicine, Cleveland (Cleveland City Hospital, St. Vincent's Charity Hospitals and University Hospitals), is grown on a farm given to the university by the late Andrew Squire. After the fox glove plants are harvested the leaves are assayed in the School of Pharmacy, which also makes the tablets and tincture of digitalis for use in the hospitals.

New A. O. A. Members at Texas

The following ten members of the senior class, who comprise the top sixth of the class with regard to grades, have been elected members of Alpha Omega Alpha honorary medical fraternity: Hugh F. Arnold, Ernest S. Cunningham Jr., Harold J. Tausend, Robert E. Hurn, James T. Downs III, Jack M. Lynn, John E. Alexander Jr., Ronald M. Burnside, George S. Woodfin and Samuel A. Hoerster Jr.

New A. O. A. Members at Cornell

The following students at Cornell University Medical College, New York, have been elected members of Alpha Omega Alpha: Elizabeth N. Conover '41, Oscar E. Goldstein '41, Henry H. Graham '41, Charles E. Holzer Jr. '41, Richard R. McCormack '41, John J. Thorpe '41, George A. Wolf Jr. '41, Preston S. Weadon '41, John T. Flynn '42, John B. Pfeiffer '42 and Franklin Robinson '42.

Ohio State University

Members of the senior class recently elected to Alpha Omega Alpha at Ohio State University College of Medicine, Columbus, are the following: Saul C. Sigelman, Harold I. Farber, Harold K. Treese and Marion T. Moreland. Those of the class initiated into the local chapter as juniors are F. Miles Flickinger, Abigail Cohen Englander and Robert E. Reiheld.

Jefferson Medical College of Philadelphia

Prof. Henrik Dam of the Biochemical Institute of the University of Copenhagen, addressed a large audience of students and physicians, January 10, at Jefferson Medical College of Philadelphia on "Vitamin K—Its Role in Human Pathology and Its Application to Therapeutics."

At the recent election, the junior class at Jefferson elected E. W. Connelly, president; Edmund T. Hackman '41, vice president; Robert H. McCarter II '42, secretary, and Joseph J. Rupp '42, treasurer.

The William Harvey Society

The William Harvey Society at Tufts College Medical School, Boston, is one of the activities of the Student Activity Plan and its purpose is to bring prominent members of the profession to the school occasionally to address the students. The president of this group this year is David M. Curtis '42. In the last two months this group has been addressed by Dr. Elliott P. Joslin, clinical professor of medicine, Harvard Medical School, Boston, and Dr. Maxwell M. Wintrobe of Baltimore.

The Louis Pasteur Club at Tufts also has become more active recently in student activities, having been addressed by Drs. Frederick L. Good and Frederick W. O'Brien, both members of the Tufts faculty.

Oklahoma

Mr. William H. Reiff, '41, of the University of Oklahoma School of Medicine, Oklahoma City, was elected to Toga honorary fraternity, the members of which are outstanding students of the professional schools of the university.

"DO YOU KNOW WHAT PHYSICIAN"

Following are answers to the questions appearing on page 793.

1. Dr. James Craik, who was a long-time friend of Washington and was surgeon in the Virginia Provincial Regiment in 1754, of which Washington was the commander. After the Revolutionary War he made his home at Alexandria, Va., in order to be near Washington, who lived at Mount Vernon. Dr. Craik died Feb. 6, 1814, about fifteen years after Washington passed away.

2. Dr. Benjamin Rush who graduated from Princeton in 1760 and from the University of Edinburgh in 1768. He was the chief founder in 1786 of the Philadelphia Dispensary. He was treasurer of the United States Mint from 1799 to 1813. Dr. Rush offered a motion before a group appointed by a mass meeting of citizens June 23, 1775 to draft an address in favor of American independence. He was delegated to prepare a report, which was adopted the following day and submitted to the Continental Congress. Much of the phraseology of this report is said to have been included in the Declaration of Independence.

3. Dr. Lawrence Turnbull (1821-1900), who lived most of his life in Philadelphia, although he was born in Scotland. At one time he was vice president of the Pennsylvania State Medical Society.

4. Dr. Noah Worcester, a native of Thornton, N. H. a graduate of Harvard University in 1832 and of Dartmouth Medical College in 1838. He pursued further studies in Paris in 1841, in 1843 he became professor of general pathology, physical diagnosis and diseases of the skin in the medical department of Western Reserve College in Cleveland. His book on diseases of the skin was published in 1845, having been written while he suffered from active tuberculosis, of which he died in 1847.

illustrations are of common apparatus and are considered superfluous. Certain of the structural formulas may be questioned by meticulous organic chemists, but most discrepancies are due to inaccuracies in the literature rather than to the author. A few revisions have been made and the translator has added two pertinent chapters—one on "Oxine" and one on "Neocupferron." The ready availability of such a collection of analytic procedures will be of great value to laboratories in which determinations of inorganic radicals are carried out.

Functional Diseases of the Intestines. By Gustav Slinger, M.D. Cloth. Price, \$2.50. Pp. 80, with 27 illustrations. New York & London: Oxford University Press, 1939.

This monograph consists of an expansion of a lecture before the Hunterian Society in 1938. It is chiefly a review of experimental work of the European school and of the author. In an attempt to explain the etiologic basis of the common functional intestinal disorders, it presents to the reader a summary of the pathologic physiology concerned, emphasizing chiefly neurogenic factors. The anatomic and physiologic discussion of the autonomic nervous system, together with the description of motor and secretory physiology, is hardly more than one would find in any good textbook on physiology. Topics are divided into dyspepsia, disorders of motility, diarrhea, constipation, ileus, diverticula, autointoxication and autoinfection, allergy and "neuroses." Aids to diagnosis, differential diagnosis, diet and environmental influences are also discussed. Foreign terminology and sentence structure make for some difficulty in reading. The book has a definite value for those not well acquainted with the subject.

Bacillary and Rickettsial Infections, Acute and Chronic: A Textbook. Black Death to White Plague. By William H. Holmes, Professor of Medicine, Northwestern University Medical School, Chicago. Cloth. Price, \$6. Pp. 676. New York: Macmillan Company, 1940.

The recent death of Dr. Holmes focuses attention on this fundamental contribution to medical science. The book has charm and literary quality possessed by few other works in the medical field. Among the conditions concerned are plague, tularemia, typhus, undulant fever, Rocky Mountain spotted fever, cholera, typhoid, the dysenteries, diphtheria, leprosy, tuberculosis and a number of bacillary infections. The method of presentation, the arrangement of headings and subheadings, the historical articles and the extensive bibliography combine to offer something distinctive in the field of medical writing. The work indicates great scholarship and insight into the educational problems of students which bespeak its wide use in medical education. Here is a textbook which may be read with the kind of ease and pleasure associated with a classic like Osler's textbook on the Practice of Medicine. To the publisher much credit is due for the quality of the presentation of this unusual material.

Physical Diagnosis. By Ralph H. Major, M.D., Professor of Medicine in the University of Kansas, Kansas City. Second edition. Cloth. Price, \$5. Pp. 464, with 437 illustrations. Philadelphia & London: W. B. Saunders Company, 1940.

The author has been a teacher of physical diagnosis for many years. His book reflects the point of view of the physician who relies largely on his well trained five senses for the diagnosis of disease. He tries to emphasize that physical signs are produced by physical causes, which must be understood before the physical signs can be properly appreciated. He has a yen for the classic descriptions made by pioneers in certain fields of medical investigation at a time when they had to rely on their senses instead of on mechanical procedures which are much in use today. His book is well illustrated with recent pictures and yet some of the illustrations are those used by the pioneers; for example, Traube's original curve of pulsus alternans, which, the author says, is of more interest than any of the many curves of this condition which have been made since. Osler once said "when you can, read the original descriptions of the masters who, with crude methods of study, saw so clearly." Probably this suggestion caused the author to quote from many of the descriptions of the old masters. But the book is modern and, with the second edition following the first in three years, it undoubtedly has served to help those who are practicing physical diagnosis without the aid of expensive and sometimes unnecessary mechanical equipment.

Your Mental Health or Between Mental Health and Mental Disease for Intelligent Laymen and Physicians. By B. Liber, M.D., Dr.P.H. Cloth. Price, \$3. Pp. 408. New York: Mellor Books, 1940.

Here is an attempt at popularization of mental hygiene, prefaced by the publisher with a number of testimonials which would seem to serve as a warning as much as an endorsement. Actually the book is a record of the author's practice concerned with questions in the field of mental disturbances, written in journalistic style, almost like a day-to-day diary. Here is an example:

Any physician in private and general practice may be called in an emergency to diagnose some form of true or false psychosis and should know how to distinguish it from intoxication or from more or less normal emotional states.

One doctor was taken by the alarmed policeman on the beat to see a young girl, who, arriving at two o'clock in the morning with her boyfriend in an automobile, had climbed into her parents' stoop apartment through the window. The officer, in the face of the young woman's opposition to be removed to the police station, had diagnosed insanity and, to prove it to her parents, wanted the nearby doctor's corroboration. The physician, however, hurriedly reaching the scene in his night-robe, found the offender just drunk—and that settled the question.

Altogether, the book gives the impression of hasty preparation and confusion. Its value for the prevention and treatment of mental disease is certainly questionable.

The Malarial Therapy of General Paralysis and Other Conditions. By William H. Kupper, M.D. Cloth. Price, \$2.25. Pp. 155, with 8 illustrations. Ann Arbor: Edwards Brothers, Inc., 1939.

This monograph is an excellent reference manual for any physician treating neurosyphilis, especially dementia paralytica. It is essentially a review of the literature. It contains many important and practical points regarding the life cycles of the tertian, quartan and estivo-autumnal parasites. There is considerable pertinent discussion regarding the anopheline mosquito. The history of malarial therapy for dementia paralytica is also given. The author reviews the various causes of cure in the malarial therapy of dementia paralytica. The latter is compared with other treatments such as relapsing fever, sodoku, typhoid vaccine, saprovitin, sulfur, artificial hyperpyrexia, tryparsamide and artificial fever plus tryparsamide. The author's attempt to enhance the value of malarial therapy by citing instances of treatment for nonsyphilitic diseases with malaria is not necessary. There is a detailed bibliography.

Getting More Out of Life. By Joseph Jastrow, Ph.D., LL.D. New edition. Cloth. Price, \$2. Pp. 312. New York: Emerson Books, Inc., 1940.

This book presents a strangely reminiscent picture. While no statement is made on the jacket or on the volume itself that the book has previously been published, the material is identical with, or much resembles, similar material published elsewhere by the same writer. Dr. Jastrow is one of the older psychologists and is the teacher of many prominent nonmedical teachers in this field. He has been a prolific writer, both scientifically and, in recent years, popularly, and his ideas are sound and conservative. The present volume deals with a number of psychologic observations, some beliefs are exploded and some interesting angles of the science are explained. The general point of view is to help people better to employ their own mental faculties and to explain mild abnormalities of the mind. It is not particularly inspirational, but it is interesting and, from the point of view of the lay psychologist, scientifically sound. It has the good point of not professing to aid the patient in any self treatment.

A Handbook of Radiography. By John A. Ross, M.A., M.R.C.S., L.R.C.P., Radiologist, Warrington Infirmary, Warrington. Cloth. Price, 7s. 6d. Pp. 126, with 67 illustrations. London: H. K. Lewis & Co., Ltd., 1940.

This interesting, concise book on radiographic technic is attractively presented in a small volume. Interleaved are a number of blank pages for notations. The book is essentially a handbook on the technical and practical radiographic methods for technicians and students. The various technical maneuvers are explained, and an effort is made to make clear the purpose of each stage of technic. There is no discussion of physics included. Such a book will be valuable in the hands of most technicians. Many physicians who do occasional radiographic work should find it useful.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

AMINOPHYLLINE FOR CORONARY THROMBOSIS

To the Editor:—In a case of coronary thrombosis, how long is it advisable to give aminophylline? Can this drug do harm if given for months?

M.D., New York.

ANSWER.—Aminophylline may be continued for weeks or months after an attack of coronary thrombosis without harm as far as is known, provided there is no disagreeable reaction from its use. In small doses, such as are commonly given, $1\frac{1}{2}$ grains (0.1 Gm.) three times a day, there is probably but little benefit. In the larger dosage of 3 grains (0.2 Gm.) or more, three or four times a day, there is indication experimentally and in some instances clinically that it may be helpful provided these larger doses do not upset the stomach. However, there is justified skepticism about the value of the drug as a routine measure in the healing process of coronary thrombosis. Many patients have done extremely well without it. Other patients have done poorly with it. A few patients have discomfort while taking it. It is more indicated in the presence of persistent symptoms of angina pectoris or disturbed breathing than in other conditions. Some patients have taken it daily for years in small doses without any evidence of harm but also without much proof of benefit. It is probably sensible to try its effect in the presence of such symptoms as mentioned for a week or two but not to continue indefinitely if there seems to be no favorable result. Intravenously, in an emergency, it is much more effective, particularly for Cheyne-Stokes respiration.

DISTURBED VISION AND FORMALDEHYDE EXPOSURE

To the Editor:—On May 21 a man aged 60 consulted me about his vision. He had been working for the past five and one-half months in a plant for making plastics. He said his eyesight had been failing rapidly for the past few days. His employer found fault with his color mixtures and it was difficult for him to do his work. His work consisted of mixing formaldehyde, urea and sulfuric acid together in certain proportions, cooking it and drying it and grinding it. He carried on this work in a basement room measuring about 15 by 25 feet. This room was poorly ventilated. Examination showed his vision to be 10/200 in each eye with the best refraction I could give him. The vessels of the fundus were dilated and tortuous with pigmented areas around the macula of the left eye. The patient has a history of a high blood pressure varying from 160 to over 200. This might account for some of the disturbance. Many plants making plastics use these some ingredients. Have others been affected as this man has been? Do you think it was the formaldehyde fumes that caused the trouble? Would good ventilation and rigid cleanliness be sufficient preventives?

H. H. Leavitt, M.D., Minneapolis.

ANSWER.—The key to this situation possibly may reside in the fact that most commercial formaldehyde contains wood alcohol as an impurity. Given in sufficient amounts, this is quite capable of inducing the impaired vision mentioned. In similar situations there have been found contracted visual fields, scintillating scotomas, dilated, immobile pupils, retinitis, atrophic nerve heads, damage to extra-ocular muscles and ptosis. Suitable inquiry should be made as to a possible methyl alcohol content in the solution of formaldehyde utilized in the preparation of the urea formaldehyde resin. Heat, as mentioned in the query, naturally increases the quantity of formaldehyde gas introduced into the atmosphere. However, formaldehyde gas chiefly acts locally, producing conjunctivitis, coryza, bronchitis and skin injury. Unless some or all of these disturbances have arisen, it is somewhat unlikely that the ocular damage described may be associated with the formaldehyde. Since formaldehyde is one of the most irritating gases of industry, suitable exhaust equipment should obviate any concentrations higher than 20 parts per million of air as breathed by workmen. Some opportunities exist in the manufacture of this type of resin to use completely enclosed systems, involving no escape of gas into the atmosphere. It is desirable that no direct contact be permitted between the skin and the materials of this synthetic resin. Finished resin occasionally induces a dermatitis among those exposed, since some persons respond to minute traces of the resin dust.

PAIN AND ESCHAR AFTER INTRAGLUTEAL INJECTION

To the Editor:—A man aged 50 received on October 8 his ninth injection of 2 cc. of iodobismutol given intragluteally. On the introduction of the needle he complained, slightly more than was his custom, of pain. He is not a hypersensitive nervous patient. As is my method, the barrel of the syringe was drawn up to be sure the point of the needle was not in a blood vessel. At once after receiving the injection the patient showed some shock, weak pulse, pallor and clammy sweating. Remaining in the office for a time he seemed to get approximately 75 per cent relief from pain and shock. Soon, however, I was called to his home, and the man was complaining of much pain in the gluteal region and some along the distribution of the sciatic nerve. Numerous visits were made to the home, and besides narcotics for pain local treatment, e. g. injections of physiologic solution of sodium chloride into the site of the pain and injections of procaine hydrochloride, was given. There was no loss of power or of sensation, but terrific pain continued, some relief beginning after about only one week. At a considerable distance from the site of injection there gradually developed what seemed to be an ecchymosis as from an outpouring of blood into the subcutaneous tissues. He has recovered from the pain and has returned to work after losing about two weeks. At present over the region of the great trochanter is a dry eschar about 3 by 4 inches. To all appearances this represents dead tissue. The results from present appearance will probably be formation of fibrous tissue beneath this eschar, the eschar being gradually cast off. What happened in this case? I feel that I did not get into the blood vessel with the point of the needle. Did I injure the nerves around a blood vessel, causing the severe pain which results from sudden lack of a good blood supply to any part, as from the ischemia of the heart muscle in angina pectoris or that of intermittent claudication? I have been using iodobismutol for many years, and this is the first trouble; it was severe. Did the patient have some vascular spasm resulting in thrombosis, which in turn gave rise to the pain and to the death of tissue resulting in the black eschar? This is to all appearances gangrene of the skin and immediately underlying tissues.

John A. Bradley, M.D., Sfeubenville, Ohio.

ANSWER.—Possibilities that come to mind are (1) that the injection of the drug involved a nerve and blood vessel, (2) that some solution other than iodobismutol was injected.

Reports in the literature (Gammel, John A.: Arterial Embolism: An Unusual Complication Following the Intramuscular Administration of Bismuth, *THE JOURNAL*, March 26, 1927, p. 998) indicate that an occlusion of the blood vessel may follow an intramuscular injection and result in what appears to be at first an infection at the site of the injection but eventually results in a slough. This reaction is not accompanied by immediate severe pain and does not appear for twenty-four or more hours after the injection.

The immediate pain and apparent shock after the injection would suggest that something other than iodobismutol was injected, possibly an escharotic because of the resulting eschar. Phenol or mercuric iodide is capable of producing such a reaction.

IRIDECTOMY

To the Editor:—A patient aged 75 had a preliminary iridectomy done a month ago. Within the past week I have noticed that the anterior chamber has become shallow, probably because of swelling of the lens; however, there was no break in the anterior capsule at the time of the iridectomy and he made an uneventful postoperative recovery. The tension with the Schiötz tonometer was 19. The cataract appeared to be mature at the time of the iridectomy. Can you give me an opinion as to the probable cause of the shallowness of the anterior chamber and its probable duration? I realize the section could be enlarged by using scissors.

M.D., Ill.

ANSWER.—In all probability the shallowness of the anterior chamber was due to swelling of the lens, which at the time of the iridectomy was not completely mature. The absorption of water by the fibers of the lens increases the volume of the lens, and the resultant expansion is always anterior, because of incompressibility of the vitreous humor. As the last lens fibers become more opaque, they lose their aqueous content and the antero-posterior diameter of the lens decreases, causing the anterior chamber to become deeper. But this process is slow and may take many months.

Operation on a swollen lens with a shallow anterior chamber involves certain risks that can be avoided by waiting for the chamber to deepen. In the first place, the incision is apt to be difficult, because of the endeavor to avoid the iris or irregular injury to the capsule. Consequently, the incision may lie too near the cornea; it is frequently too small. Improper length must not be counted as a great mistake, for the incision can always be lengthened with scissors. The resultant wound, however, is not as smooth as though the entire incision were made with a Graefe knife. In the second place, if the lens is to be removed within its capsule it is difficult to grasp the anterior capsule with any forceps, and the purpose of the operation is likely to be defeated. Therefore extracapsular or suction extraction is the method of choice with a swollen lens. But, in the hands of the experienced operator, neither produces as good results as does a smooth intracapsular extraction.

QUERIES AND MINOR NOTES

EPHEDRINE DERIVATIVES, BARBITURATES AND DIPLOPIA

To the Editor:—A patient aged 51 complains of diplopia for three weeks and bronchial asthma for twelve years. During the past twelve years he has taken many remedies for relief of his asthma. For the past year he has taken propadrine hydrochloride (Sharpe and Dohme), six to eight 34 grain (0.04 Gm.) capsules daily; also an occasional inhalation of epinephrine spray. The previous year he took large quantities of ephedrine and amytal capsules. Are there any reports of propadrine hydrochloride or ephedrine causing diplopia? His eyes when checked by a good eye specialist were found to have normal vision and normal fields. There is some damage to the third and sixth cranial nerves. There are no other neurologic abnormalities, and the blood Wassermann reaction is negative.

Frederick A. Shore, M.D., Ventura, Calif.

ANSWER.—There are no reports in the literature pointing to diplopia being caused by propadrine hydrochloride, ephedrine or their derivatives. This does not preclude the possibility that ephedrine-like compounds may produce disturbances in vision through their well known effects on the central nervous system. The use of barbituric acid and its derivatives has caused complications too numerous to mention. In the French literature there is a report in which a case of acute barbiturism simulating encephalitis lethargica with diplopia is described. In the American writings Lundy and Osterberg commented on the occurrence of dilated pupils and nystagmus and included the report of Lyons, who in 1907 reported a case in which diplopia occurred within two hours after the patient took a barbituric acid derivative.

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Lyons, E.: An Experience with Veronal, *Brit. M. J.* 1: 259, 1907.

TREATMENT OF ICHTHYOSIS

To the Editor:—Is there a new or different treatment for ichthyosis?
George E. Gardner, M.D., Lancaster, Ohio.

ANSWER.—There is no accepted new treatment of ichthyosis. There are only a few reports of success in treating one or more cases, and these lack substantiation by others. Niizawa reports (Ueber drei interessante Fälle von Ichthyosis vulgaris und die neue Behandlungsmethode, *J. Orient. Med.* 27:29 [Sept.] 1937) three cases in one family, brothers aged 4, 6 and 8 years. They were given intracutaneous injections of blood serum which had been exposed in a quartz container for thirty minutes to ultraviolet radiation. From twenty-one to twenty-four doses were given, 0.3 cc. each time. After this series there was remarkable improvement in all the children. P. S. Robinson (Congenital Ichthyosis, *Southwest. Med.* 21: 41 [Feb.] 1937) describes a severe congenital ichthyosis which he treated with thyroid extract one-tenth grain (0.0065 Gm.) daily up to 6 months of age, and after that one-half grain (0.03 Gm.) daily. The skin improved and the ectropion disappeared. Some thickening of the skin and branny scaling persisted. Kylin (Ein Fall von Ichthyosis mit erfolgreicher Behandlung durch Hypophysentransplantation, *Svenska läk.-tidning* 35:1123 [July 8] 1938, reviewed in German in *Zentralbl. f. Haut- u. Geschlechtskr.* 60:665, 1938) reports a cure of ichthyosis by transplantation of the hypophysis cerebri of a calf. After only fourteen days the skin had become normal in appearance.

TREATMENT AND PROGNOSIS IN CARCINOMA OF BREAST

To the Editor:—What is the preferred treatment of a patient 67 years old in apparently good health who has a breast tumor as big as a walnut with a dimpling of and attachment to the breast with no palpable glandular involvement? Clinically it is a carcinoma. What is the percentage of five year cures in similar cases by (1) radical operation and roentgen therapy and (2) mastectomy and roentgen therapy?

ANSWER.—Radical mastectomy is the treatment of choice for operable mammary cancer. This procedure should be preceded by biopsy and frozen section only when the clinical diagnosis is in doubt. When the axillary glands are proved to be free of cancer by microscopic examination the cures by radical mastectomy amount to approximately 70 per cent. There is a difference of opinion on the value of prophylactic postoperative irradiation. One school of thought considers that prophylactic postoperative irradiation after radical mastectomy for a strictly operable lesion in which the lymph nodes are not involved is not indicated. Others believe that the radical operation should be followed by prophylactic roentgen therapy in all cases. The

Somuel Chernauek, M.D., Dickinson, N. D.

comparative statistics of radical mastectomy alone and radical mastectomy followed by postoperative irradiation vary markedly as reported by different authors. No comprehensive statistics in the literature stating the five year cures by simple mastectomy combined with postoperative irradiation have been found.

EXTENSOR REFLEX OF BIG TOE FROM YAWNING SUBSEQUENT TO HEMIPLEGIA

To the Editor:—Am I right in assuming that I have observed a new Babinski reflex sign, as I could not find this sign mentioned in the literature accessible to me? A man suffered a cerebral hemorrhage of the facial hemiplegia alternans (Millard-Gubler syndrome) type on July 10, 1940. After four weeks it evolved into the usual chronic type with paralysis of the whole right side of the face and contralateral paralysis of the left arm and leg, suggesting pontile lesion. I have observed that when he yawns the paralyzed left foot and hand show the typical Babinski phenomenon d'éventail accompanied by dorsal flexion of the first toe and response finger. The same patient exhibits the coughing sign in a pronounced way even while standing. I would greatly appreciate your opinion whether this sign was ever recorded in the medical literature.

Hilary Layzer, M.D., Cleveland.

ANSWER.—No mention of the Babinski sign, as such, as produced by yawning has been found. However, stretching and extensor movements which probably include extension of the big toe are described as being produced in persons with hemiplegia by yawning. Samuel Brock (The Basis of Clinical Neurology, Baltimore, William Wood & Co., 1937, p. 314) says that "it would seem that extrapyramidal pathways carry these posture-changing impulses to the anterior horn cells, since stretching movements occur in the hemiplegic limbs of patients, in which the usual signs of defect of the pyramidal tract are easily demonstrated." James Purves-Stewart (The Diagnosis of Nervous Diseases, ed. 5, London, E. Arnold & Co., 1920, p. 87) states that automatic extension movements "are often well seen in the paralyzed limbs in a case of severe hemiplegia when the patient yawns or is tickled."

EUCUPIN NOT SUITED TO PARAVERTEBRAL INJECTION

To the Editor:—A white man aged 47 complains of pain in the lower portion of the lumbar region radiating to the entire left lower extremity especially toward the lateral aspect approximately three and one-half months following a left paravertebral infiltration with what he understands to have been eucupin (contains eucupin base 0.1 per cent, ethyl aminobenzoate 3 per cent and benzyl alcohol 5 per cent in oil of sweet almond. Eucupin is isoamylhydrocupreine). This treatment was administered for a sprained back. Examination reveals no sensory or motor disturbance. There was no evidence of spasticity, deformity or abscess formation in the region which was infiltrated. Please comment on any undesirable reaction from the use of eucupin in oil or nerve injury from this procedure.

M.D., Michigan.

ANSWER.—Eucupin has been carefully studied in various laboratories and according to a recent but unpublished report it tends to cause fibrosis in the tissues. Proctologists like its prolonged anesthetic effect but say that great care must be taken to avoid necrosis. The discoverer of eucupin, Morgenroth (1912), emphasized its antiseptic as well as prolonged anesthetic action. It was the subject of a special article by de Takats, published in *Surgery, Gynecology and Obstetrics* (43:100 [July] 1926). It is easy to understand that it is not suitable for paravertebral injection, as the resulting fibrosis may compress and irritate the nerve.

WELTMANN SERUM COAGULATION REACTION

To the Editor:—In reference to the question regarding the coagulation reaction (January 11, p. 176): After extensive study of the test, I agree that it has not fulfilled the original expectations in differentiating between introhepatic and extrahepatic jaundice. It is of little value in diagnosing parenchymatous or cirrhotic processes in the liver. The test is, like the sedimentation rate and the leukocyte count, a nonspecific indicator of disease. I also agree that the test can in no way replace a careful history and physical examination, as the publications of others and in unpublished data of my own, the test has been found a more reliable indicator of the presence of an inflammatory process than the sedimentation rate. False positives (increased speed of sedimentation in absence of disease) are common for the sedimentation rate. False shortening (coagulation bond of less than 4) rarely occurs with the Weltmann test. If a coagulation bond of 4 or less is found and no other laboratory, roentgenologic or physical finding explains the patient's symptoms, it is best not to make a diagnosis of a functional disturbance but to recheck and make additional tests until some organic process is found. In certain carcinomas of the digestive tract the coagulation bond (K. B.) is shortened. Penetrating posterior wall gastric or duodenal ulcer should be suspected with a positive history, despite negative roentgen ray evidence, if the coagulation bond is shortened. In pneumonia the coagulation bond is shortened before physical signs become definite, and lengthening of the bond is evidence of improvement even if physical signs persist. Further investigation is required to establish the true value of this test. I believe it will prove as useful as leukocyte counts and may replace the sedimentation test.

Monfred Kraemer, M.D., New York, N. J.

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TOXOPLASMIC ENCEPHALITIS IN CHILDREN

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It has been abundantly demonstrated in recent years that acute nonsuppurative encephalitis is a syndrome of multiple etiology. My purpose in the present communication is (1) to present evidence that organisms of the genus *Toxoplasma* can be the cause of such encephalitis in children, (2) to describe the clinical and pathologic appearances and (3) to indicate the steps which can be taken to establish the diagnosis.

PRESENT STATUS OF TOXOPLASMA

Toxoplasma is a genus of protozoan parasites which were first observed in the gondi (North African rodent) in 1908 by Nicolle and Manceaux,¹ who differentiated it from *Leishmania*, and independently in the same year in the rabbit (Brazil) by Splendore.² They are highly organized parasites consisting of distinct cytoplasm and nuclear chromatin and are crescentic, pyriform, oval or round, measuring 6 to 7 microns in length and 2 to 4 microns in width, depending on the stage of development, as seen in fresh cover-slip preparations or in stained films. In fixed tissue sections they are not only smaller but also appear different because of the shrinkage of the cytoplasm and nucleus. The chief taxonomic characteristic of the group, however, is the capacity to multiply and produce disease in a wide range of hosts, including mammals and birds. Since 1908 there have been reports of the natural occurrence of the organisms in a large number of animal species (gondi, rabbit, guinea pig, mouse, rat, squirrel, dog, monkey, pigeon and other birds) from almost all parts of the world, but in the majority of instances the diagnosis was based entirely on morphology. The existence of *Toxoplasma* in any host cannot, however, be accepted as proved without demonstrating the chief characteristic of pathogenicity for many different types of animals. Sabin and Olitsky³ first proved the existence of *Toxoplasma* in North America when they isolated and maintained for study a highly pathogenic strain from a guinea pig. They demonstrated that (1) this strain was pathogenic for guinea pigs, mice,

rabbits, rhesus monkeys, chicks and chickens, (2) multiplication was possible only within living cells, which included not only monocytes and endothelial cells but practically every type of parenchymal cell (liver, adrenals, lung, brain), (3) infection could be effected experimentally by the intracutaneous, subcutaneous, intracerebral, intravenous, intranasal and oral routes and contact infection, studied in mice, occurred only when small numbers of starved animals were allowed to feed on others recently dead of the experimental disease, and (4) neutralizing antibodies, which could be used not only as an index of infection but also as a means for identifying *Toxoplasma*, developed during the course of the disease in some animals (rhesus monkeys) but not in others (rabbits).

Toxoplasma has been reported on a number of occasions as causing disease in man, but, with one exception, on inadequate and inconclusive criteria. Castellani⁴ described bodies which he believed to be *Toxoplasma* in smears of the blood and spleen of a 14 year old boy from Ceylon who died of a disease characterized by severe anemia, prolonged fever and splenomegaly. Fedorovitch⁵ found bodies similar to those reported by Castellani in blood smears of a 10 year old boy from the Black Sea district who also had prolonged fever, anemia and splenomegaly. Chalmers and Kamar⁶ also reported bodies similar to those of Castellani in a film of the spleen of a soldier in the Sudan, who along with many others suffered chiefly from chronic fever, headache, cough and diarrhea. While even the morphologic resemblance to *Toxoplasma* has been questioned in these cases (Wenyon⁷), they cannot be accepted as examples of human toxoplasmosis chiefly because definite identification is impossible without transmission to animals of various species. In this connection it should be pointed out that isolation of *Toxoplasma* from a single animal inoculated with suspected human material also constitutes inadequate evidence unless the same parasites are directly demonstrable in the suspected tissue, or at least several animals, of a stock proved not to be spontaneously infected, succumb within a similar period after inoculation; as an example may be cited Bland's⁸ isolation of *Toxoplasma* from a rabbit inoculated with the blood from a patient with glandular fever (infectious mononucleosis).

Toxoplasma has also been considered as the probable etiologic agent in still another type of human disease.

Read before the twelfth annual meeting of the Society for Pediatric Research at Skytop, Pa., May 1, 1940.

From the Children's Hospital Research Foundation and the Department of Pediatrics of the University of Cincinnati College of Medicine.

1. Nicolle, C. and Manceaux, L.: Sur une infection à corps de *Leishman* (ou organismes voisins) du gondi, *Compt. rend. Acad. d. sc.*, **147**: 763, 1908; Sur un protozoaire nouveau du gondi, *ibid.*, **148**: 369, 1909.

2. Splendore, A.: Un nuovo protozoa parassita de conigli, *Rev. Soc. scient. São Paulo* **3**: 109, 1908; Sur un nouveau protozoaire parasite du lapin: Deuxième note préliminaire, *Bull. Soc. path. exot.*, **2**: 462, 1909.

3. Sabin, A. B., and Olitsky, P. K.: *Toxoplasma* and Obligate Intracellular Parasitism, *Science* **55**: 336, 1937.

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6. Chalmers, A. J., and Kamar, A.: *Toxoplasma Pyrogenes* Castellani, *J. Trop. Med.*, **23**: 45, 1920.

7. Wenyon, C. M.: "Hemogregarines" in Man, with Notes on Some Other Supposed Parasites, *Trop. Dis. Bull.*, **20**: 527, 1923.

8. Bland, J. O. W.: Glandular Fever II. The Probable Nature of the Experimental Disease, *Brit. J. Exper. Path.*, **12**: 311, 1931.

Jankú⁹ reported the presence of parasitic cysts in the retinal lesion of the right eye of an infant who had left microphthalmus and increasing hydrocephalus from birth, and although he referred to them merely as Sporozoa, Levaditi¹⁰ suggested that they may be Toxoplasma. Torres¹¹ found parasites in sections of the brain, heart, skeletal muscle and subcutaneous tissue of an infant who died with convulsions at 2 days of age and named them *Encephalitozoon chagasi*, although in this case also Levaditi was inclined to regard the parasites as *Toxoplasma*. "Parasitic" forms in the spinal fluid of a 17 year old boy (Corsica) who died

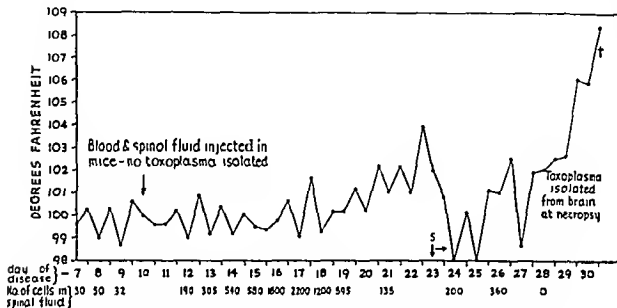


Fig. 1 (case 1).—Temperature in a case of toxoplasmic encephalitis.

of meningitis after an illness of three days were described by Coulon,¹² who called them *Encephalitozoon brumpti* because they were larger than those described by Torres. In 1937 Wolf and Cowen¹³ gave a complete description of the clinical and pathologic observations in a case of congenital granulomatous encephalomyelitis in an infant who died at 29 days of age; because the parasites which they found with ease in the sections of the nervous system were smaller in size than that recorded for *Toxoplasma* organisms in fresh preparations or stained smears, they called them *Encephalitozoon hominis*. The familiarity with *Toxoplasma*, gained from two years of study of a guinea pig strain, led me to suggest to Wolf and Cowen that there was nothing in the appearance of the parasites and the associated pathologic changes found in their case which was inconsistent with their identification as *Toxoplasma*, but that an absolute diagnosis was possible only after suitable transmission to animals. After a study of this guinea pig strain in histologic sections, Wolf and Cowen¹⁴ noted the similarity to the parasites in their human case and reported finding similar parasites and lesions in still another case of congenital encephalitis which was described by Richter¹⁵ and reinvestigated by themselves. However, it was not until the following

year, 1939, that definite evidence was supplied by Wolf, Cowen and Paige¹⁶ that the parasites found in association with the granulomatous lesions in a 31 day old infant dead of "congenital" encephalitis were actually *Toxoplasma*; this was accomplished by transmission to a large number of animals, and comparative biologic and immunologic studies which those authors¹⁶ and I¹⁷ made established the identity between *Toxoplasma* of human origin and the guinea pig strain. There is therefore definite evidence of toxoplasmic infection in only one human being, an infant with "congenital" encephalitis; that the four other cases of congenital encephalitis associated with morphologically similar parasites are also examples of the same infection can be considered only as probable. The recent report of Pinkerton and Weinman¹⁸ contains most striking morphologic evidence of the occurrence of lesions and *Toxoplasma*-like parasites in the central nervous system, myocardium, liver, spleen, skin, lymph nodes, bone marrow, adrenals and kidneys of a 22 year old Peruvian. It may be of interest to note also that, through the courtesy of Dr. J. H. Bauer and L. T. Coggeshall of the International Health Division of the Rockefeller Foundation, I have had the opportunity to observe lesions (focal necrosis) and *Toxoplasma*-like structures in sections of liver obtained in the routine yellow fever viscerotome studies in South America.

REPORT OF PRESENT CASES

CASE 1.—*Encephalitis in a 6 year old boy, fatal one month after onset. Lesions and parasites in nervous system. Toxoplasma isolated from many mice inoculated with nervous tissue, and neutralizing antibodies for Toxoplasma demonstrated in blood obtained from patient post mortem.*

Clinical History.—R. H., a white boy aged 6 years, who was born and raised in Cincinnati, was admitted to the Contagious Division of the Cincinnati General Hospital on Oct. 31, 1939, complaining chiefly of weakness of the legs and headache. There was nothing of significance for the present illness either in the family or the past history.

The history of the present illness begins with an incident on Oct. 22, 1939, when the boy received a blow on the head with a baseball bat. He was not knocked down, however, and the blow was so slight that he laughed about it. Two days later (October 24) he had severe headache which was relieved by acetylsalicylic acid. On October 25, while going to school, he staggered and had much difficulty in walking. He was sent home from school and was put to bed complaining of weakness of the right leg and severe frontal headache. On the same day (October 25) he had a generalized convulsion, and the local physician who examined him could find "nothing specifically wrong." He vomited once on October 27, and on October 30 the headache reappeared and weakness of both arms was noted. He had another convulsion on October 31 and vomited "forcefully" just before admission. There was no history of fever or of respiratory or gastro-enteric disturbance prior to admission.

Physical Examination.—On admission to the hospital, which was seven days after the first onset of headache, the boy appeared well developed but somewhat poorly nourished, was oriented, mentally alert and cooperative, and did not appear very ill. The rectal temperature was 99.6 F. and there was no evidence of injury to the head or even of localized tenderness. The positive physical signs outside of the nervous system consisted of (1) a generalized lymphadenopathy involving especially the anterior and posterior cervical nodes and to a lesser extent the axillary and inguinal nodes and (2) a palpable spleen. The affected lymph nodes were firm, discrete and not tender. The neurologic examination was remarkable for the negative rather

9. Jankú, J.: Pathogenesis and Pathologic Anatomy of Coloboma of the Macula Lutea in an Eye of Normal Dimensions, and in a Microphthalmic Eye, with Parasites in the Retina, Časop. lékař. česk. 62: 1021, 1052, 1081, 1111 and 1138, 1923.

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11. Torres, C. M.: Sur une nouvelle maladie de l'homme, caractérisée par la présence d'un parasite intracellulaire très proche du *Toxoplasma* et par l'apparition de lésions dans le tissu musculaire cardiaque, les muscles du tissu nerveux, Compt. rend. Acad. Sci. Paris 207: 100, 1938. (Note: The text in the original image is partially obscured and difficult to read, but the key information is that it describes a new disease in man characterized by the presence of a parasite very close to *Toxoplasma* and lesions in cardiac muscle, nervous tissue, and myocarditis.)

12. Coulon, A. de parasitol. 7: 449, 1929.

13. Wolf, A., and Cowen, D.: Granulomatous Encephalomyelitis Due to an *Encephalitozoon* (Encephalitozoon Encephalomyelitis). A New Protozoan Disease of Man, Bull. Neurol. Inst. New York 6: 306, 1937.

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15. Richter, R.: Meningo-Encephalomyelitis Neonatorum: Anatomic Report of a Case, Arch. Neurol. & Psychiat. 36: 1055 (Nov.) 1936.

16. Wolf, A.; Cowen, D., and Paige, B. H.: Human Toxoplasmosis: Occurrence in Infants as an Encephalomyelitis: Verification by Transmission to Animals, Science 89: 226, 1939; Am. J. Path. 15: 657, 1939.

17. Sabin, A. B.: Biological and Immunological Identity of *Toxoplasma* of Animal and Human Origin, Proc. Soc. Exper. Biol. & Med. 41: 75, 1939.

18. Pinkerton, H., and Weinman, D.: *Toxoplasma* Infection in Man, Arch. Path. 30: 1374 (July) 1940.

than the positive results. There was no nuchal rigidity, and the Kernig and Brudzinski signs were negative. There was no photophobia, and examination of the fundi revealed neither papilledema nor any exudate or hemorrhage in the retina. There were no signs of involvement of any of the cranial nerves. He could move all his extremities and there were no tremors, atrophy or definite weakness in any of them. Sensation was normal. The knee jerks were equal and active, while the ankle jerks, the abdominals and the reflexes of the upper extremities were obtained irregularly. The Babinski, Hoffman, Chvostek and Trousseau signs were negative.

Course.—On October 31, about four hours after admission, he became very restless and semidelirious and had a convulsive seizure, which began with slight twitching of the face and right arm, followed by a turning of the head and eyes to the right, and continued with twitching of both sides of the face and tongue, violent clonic movements of the right arm, slight clonus of the right leg and tonic spasm of the left arm and leg. The seizure lasted about six minutes and was followed by relaxation and stupor. The next day he was apathetic, comatose, confused and irrational, and jerky movements of the right hand and arm were noted. He became more apathetic and, although he still responded to noise and light, he did not speak. Jerking movements of the right upper extremity continued, and by the eleventh day of the disease there was twitching of the arms, face and tongue occurring with a certain rhythmicity. Between the eleventh and twenty-third days of the disease his condition was more or less the same with occasional convulsive seizures and periods of muscle twitching. Parkinsonian-like movements were noted on the twenty-third day and he continued to get worse with rapid and labored respiration, weak and irregular pulse, profuse perspiration and almost persistent muscle twitching, sometimes approaching convulsive severity. He died on the thirtieth day of the disease coincidentally with a rise in temperature to 108.4 F.

The temperature (fig. 1) ranged between 99 and about 101 F. until the twentieth day, when it rose to 102.2 and remained at a higher level thereafter except for about two days after the beginning of sulfanilamide¹⁹ therapy on the twenty-third day of the disease. Except during the last few days, the pulse and respiratory rates were more or less proportional to the temperature.

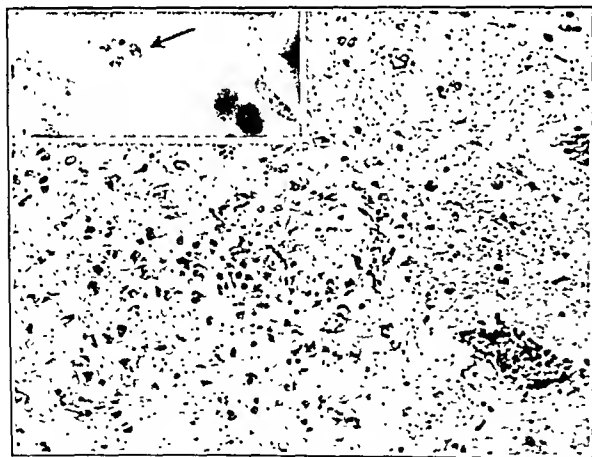


Fig. 2.—Pathologic focus in human cortex; (X 148) reduced from a photomicrograph with a magnification of 240 diameters. Inset shows group of four organisms of the genus *Toxoplasma*; (X 857) reduced from a photomicrograph with a magnification of 1,400 diameters.

Treatment was symptomatic and consisted of sedatives, transfusions, intravenous injection of fluid, gavage (because there

were periods of dysphagia) and during the last week of the disease sulfanilamide.

Laboratory Data.—**Spinal Fluid:** The number of cells per cubic millimeter rose from 30 on the seventh day to 2,200 on the seventeenth day and then dropped again to a point where no cells were seen on the twenty-eighth day of the disease; the cells were predominantly mononuclear throughout; the

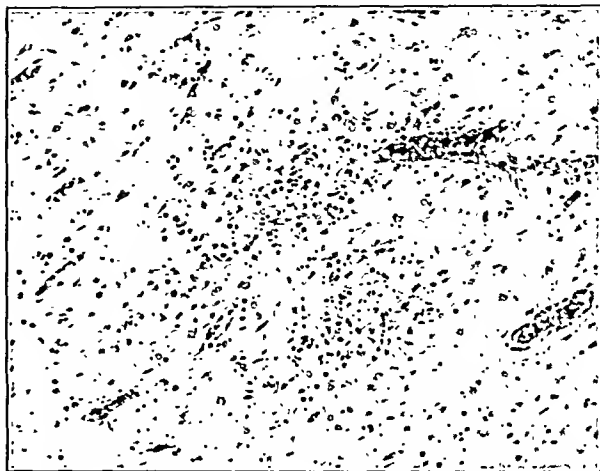


Fig. 3.—Pathologic focus in human cortex; (X 148) reduced from a photomicrograph with a magnification of 240 diameters.

results of repeated chemical examinations yielded values of 15-38 mg. per hundred cubic centimeters for protein and 45-76 mg. per hundred cubic centimeters for sugar; cultures and Wassermann reaction were negative.

Blood: Cultures and the Wassermann reaction were negative. The amount of sugar was 128 mg. and of calcium 10.2 mg. per hundred cubic centimeters. The Widal test, *Brucella abortus* and *Pasteurella tularensis* agglutination were normal on the twenty-first day of disease. A typical blood count on the fifteenth day of the disease showed 5,020,000 erythrocytes and 10,000 leukocytes, with 70 per cent neutrophils, 25 per cent lymphocytes, 5 per cent monocytes and less than 1 per cent of eosinophils and basophils.

The throat culture was negative for diphtheria bacilli. The urine was normal on repeated tests. The tuberculin reaction was negative. Roentgenograms of the skull showed no evidence of fracture; the cervical spine and long bones were normal, and examination of the chest on the eighth and eighteenth days of the disease revealed no abnormalities.

Pathologic Examination.—The autopsy was performed within one hour after death. Unfortunately, permission was limited to examination of the brain and spinal cord. With the probable exception of congestion and slight edema there was no gross pathologic change. Even after fixation in solution of formaldehyde, section of the entire brain in 3 to 5 mm. slices failed to reveal any gross lesions. The paucity of microscopic abnormalities was equally surprising. In the first examination of sections from about twenty different levels of the brain and cord only one pathologic focus was found. Examination of more than 100 additional sections from as many different levels of the central nervous system, including the olfactory bulbs, the neopallial and rhinencephalic cortex and the corpus striatum, diencephalon, mesencephalon, pons, medulla, spinal cord and intervertebral ganglions revealed only twelve pathologic foci of the type illustrated in figures 2, 3 and 4. The pathologic focus was apparent even under low magnification as a "moth-eaten," necrotic and honeycombed area which was infiltrated with a varying number of cells which had irregular, pyknotic nuclei. An adjacent vessel occasionally showed cuffing with a single row of round cells (fig. 2) but that was infrequent. Figure 3 shows clearly the relationship that these necrotic foci bore to the cerebral vessels. Careful examination of each focus under high magnification failed to reveal forms which one could identify as *Toxoplasma* with certainty, although in at least one instance a group of four *Toxoplasma*-like structures (inset in figure 2) was found in the immediate vicinity of the area shown

19. Recent chemotherapeutic studies with the strain of *Toxoplasma* isolated from this patient have shown that, while sulfathiazole and sulfapyridine can exert a curative effect on toxoplasmic infection in mice, sulfanilamide only delays death but cannot prevent it. Twenty other compounds of known therapeutic effectiveness against various protozoan infections had no effect on the course of toxoplasmic infection in mice (Sabin, A. B., and Warren, J., Therapeutic Effect of the Sulfonamides on an Intracellular Protozoan [*Toxoplasma*] Infection, abstr. J. Bact. [Jan.] 1941).

in figure 2. These pathologic foci were scattered diffusely throughout the nervous system and were noted in the cortex (figs. 2 and 3), right side of the thalamus (fig. 4), the corpus striatum, the nuclei of the pons and the cervical cord. While some of the foci contained isolated forms which might be suspected of being *Toxoplasma*, no cystlike aggregates or other collections of morphologically similar structures were found anywhere in the nervous system, even though I am fully familiar

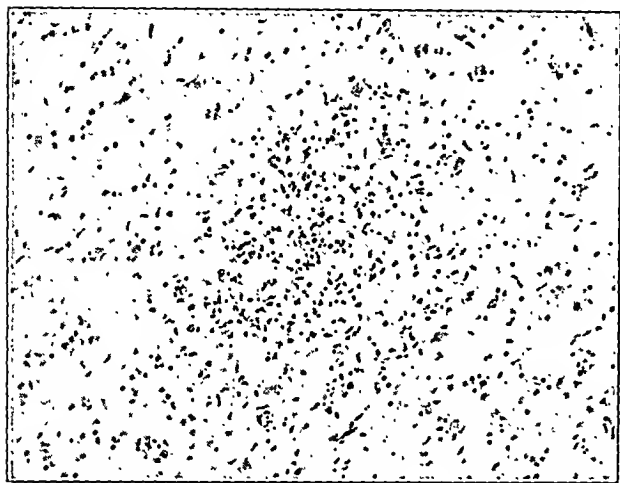


Fig. 4.—Pathologic focus in human thalamus; ($\times 110$) reduced from a photomicrograph with a magnification of 160 diameters.

with the difference in appearance of *Toxoplasma* in sections of fixed tissue and in films. In addition to these necrotic foci the meninges were thickened and hyperplastic in isolated areas and sparsely infiltrated with mononuclear and polymorphonuclear cells. An occasional vessel in a cortical fissure was infiltrated with round cells (fig. 5) but that was uncommon. Most of the nerve cells and especially those of the spinal cord showed diffuse chromatolysis but were otherwise well preserved. The choroid plexus showed no pathologic change. It should be noted here that, while the character and distribution of lesions is not dissimilar to those found in mice and rabbits after infection by a peripheral route, the diagnosis of toxoplasmic encephalitis could not have been made in this case without transmission to animals. It is also remarkable how the observations in this case differ from the extensive, gross and microscopic pathologic changes which have been observed in the one proved case of "congenital" encephalitis due to *toxoplasma*.¹⁰

Transmission to Animals.—When the nervous tissue in this case was injected into mice, the possibility of toxoplasmic infection was not considered and one step was used, i. e. the preliminary light centrifugation of the tissue suspension, which is known to diminish the chances of isolating *Toxoplasma* from the supernatant liquid. Because of their large size, the organisms are easily sedimented by ordinary horizontal centrifugation. Nevertheless, 5 of the 8 mice which were inoculated intracerebrally (0.03 cc.) and intra-abdominally (1 cc.) with the lightly centrifuged 10 per cent suspension of the human brain in broth developed typical experimental toxoplasmosis. Culture of the human brain suspension on ordinary bacteriologic mediums was sterile (the brain was removed with aseptic precautions). On the thirteenth day after inoculation, one of the mice exhibited a swollen abdomen and puncture yielded a large amount of peritoneal exudate in which *Toxoplasma* organisms were found extracellularly and intracellularly both in fresh cover-slip preparations and in films stained with Wright's stain. Intracerebral injection of this exudate into 6 mice produced a fatal toxoplasmic encephalitis in all of them. Similar abdominal distention with *Toxoplasma* in the peritoneal exudate was found in 3 other mice (one on the fourteenth and two on the seventeenth day) which received the human brain suspension. Of these mice 1 died on the seventeenth day, 1 on the nineteenth, 1 on the twentieth and 1 survived. The most striking gross finding was a cherry-red gelatinous pneumonitis. The largest number of organisms were seen in films of the lungs, while in

those of the liver and spleen only an occasional organism was found after long searching; a few pseudocysts were found in films of the brain (fig. 6). While none of the other 4 mice developed abdominal distention and the small amount of peritoneal fluid which could be obtained from them did not show *Toxoplasma*, 1 died on the twenty-first day and showed the same type of pneumonitis with large numbers of organisms in the films from the lungs. The remaining 3 mice were killed on the twenty-sixth day; films from the brain and viscera did not reveal *Toxoplasma*, and subinoculation of the tissues of each mouse into at least 4 others was negative. Subinoculation of the tissues from the mice which showed *Toxoplasma* produced a fatal toxoplasmic infection in each instance.

It should be noted here that at the same time that the fresh human brain (motor cortex and medulla) suspension was inoculated into mice, the olfactory bulbs and whole blood obtained by cardiac puncture postmortem were also inoculated, each into 5 mice. *Toxoplasma* was not found in any of these animals; they were killed on the twenty-sixth day and after examination for *Toxoplasma* the brain and viscera from each of these mice were subinoculated into 4 others with negative results. Furthermore, the tissues of 3 mice which died of trauma within twenty-four hours after inoculation with the human material were subinoculated into 12 others with negative results; these were in turn killed on the twenty-sixth day and their tissues inoculated into 12 new mice with negative results. Although previous attempts to demonstrate spontaneous toxoplasmic infection in another stock of laboratory mice have been unsuccessful, such an attempt was repeated on at least 200 mice of the stock used in the present study and also without success. These experiments are mentioned to point out that the stock of mice we used was not spontaneously infected with *Toxoplasma* and that the development of experimental toxoplasmosis in 5 of the 8 mice inoculated with the centrifuged human brain suspension points to the origin of these *Toxoplasma* organisms in the human brain. It is also apparent that *Toxoplasma* was not present in the human blood after death or in the olfactory bulbs. It should also be noted that on the tenth day of the human disease the patient's heparinized blood and spinal fluid were inoculated intracerebrally and intra-abdominally, each into 6 mice. None of these mice developed toxoplasmic infection, and passage of the brain and viscera from half their number

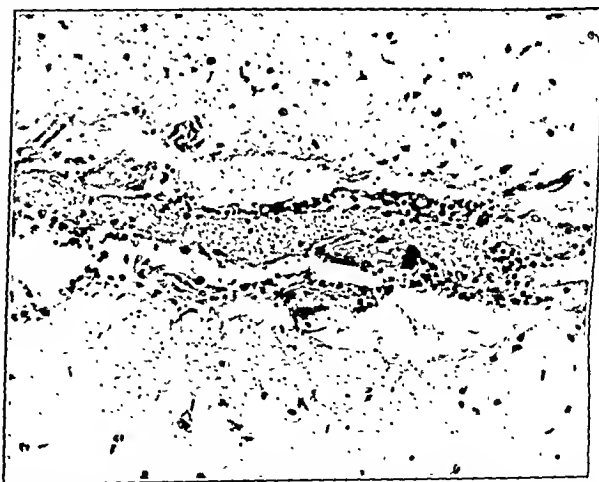


Fig. 5.—Cellular infiltration along a vessel in a cortical fissure; ($\times 110$) reduced from a photomicrograph with a magnification of 160 diameters.

at the end of five weeks into other mice was also negative; the remaining mice were found not to be immune when they were tested ten weeks after the original inoculation.

Some of the human brain which was preserved in 50 per cent buffered glycerin and kept in the refrigerator for thirteen days was inoculated into 6 mice but *Toxoplasma* was not isolated either directly or by passage. This observation is in agreement with the fact that these organisms do not survive in glycerinated tissue.

PROPERTIES OF THE R. H. STRAIN OF HUMAN TOXOPLASMA

Mause Passage.—The interval between inoculation and death was rapidly shortened on passage from seventeen to twenty-one days in the first (partly because of the small number of *Toxoplasma* organisms in the centrifuged human brain suspension) and from seven to eight days in the second to from three to five days in the third passage and thereafter. This strain has now undergone over forty passages in mice and is being maintained in this species for future reference and further studies.

Pathogenicity for Other Species.—Guinea pigs inoculated intracerebrally and intra-abdominally or only intracerebrally succumb with a toxoplasmic encephalitis between the fourth and sixth days. Rabbits inoculated intracutaneously with 10 per cent mouse brain suspension regularly develop necrotic skin lesions and fever on about the fourth day and succumb to a generalized toxoplasmic infection usually between the eighth and tenth days. At necropsy the liver shows innumerable white, pinpoint, necrotic foci, and the spleen is enlarged often to more than three times the normal size. Microscopically, lesions and *Toxoplasma* organisms are also found in the brain and adrenals. Four *Macacus rhesus* monkeys were inoculated with 10 per cent mouse brain suspension intracutaneously (0.2 cc. in two areas on the abdominal skin) and intra-abdominally (10 cc.); 2 of the 4 monkeys were also inoculated intracerebrally (2 cc.). All monkeys developed papular skin lesions (from 1 to 2 cm. in diameter) and fever on about the fourth day. In the monkeys inoculated only intracutaneously and intra-abdominally the temperature returned to normal after several days, the skin lesions disappeared, and neutralizing antibodies against *Toxoplasma* appeared in the blood. Both monkeys which received the intracerebral inoculations died—one on the seventh day after two days of almost continuous convulsions and the other on the fourteenth day after several days of severe lethargy and weakness. Two 3 day old chicks, inoculated intracerebrally with 0.06 cc. of 10 per cent mouse brain suspension developed paralysis in five days; 1 died on the tenth day and the other was killed on the seventh day when he was prostrate, and a suspension of its brain which showed many *Toxoplasma* organisms was inoculated intracerebrally into 2 other 4 day old chicks. One of these died twelve days after inoculation, and while the other remained well for a month, *Toxoplasma* organisms were shown to be present in its brain by subinoculation of mice. Two 3 day old chicks which were inoculated intramuscularly with 1 cc. of 10 per cent mouse brain suspension developed a generalized weakness on the twelfth day; 1 died on the thirteenth day and the other on the nineteenth day. By subinoculation in mice, *Toxoplasma* organisms were shown to be present in the brain as well as in the viscera. The etiologic relationship between *Toxoplasma* and the fatal experimental diseases induced in the guinea pigs, rabbits, *rhesus* monkeys and chicks was established in each case by demonstrating *Toxoplasma* in films of affected tissues and in histologic sections, by positive passage back again into mice, and by the absence of other infectious agents.

CASE 2.—*Atypical encephalitis of nine days' duration followed by complete recovery in an 8 year old boy. Toxoplasma isolated from guinea pigs inoculated with patient's spinal fluid.*

Clinical History.—W. B. D., a white boy aged 8 years who was born and raised in West Virginia, was well until Oct. 12, 1939, when he first complained of headache and "lights in front of his eyes." He went to school that day but was brought home by the teacher, who said that the boy had "fainted, his eyes rolled and he vomited." He was kept in bed for about a day and then was up and about without further complaint or signs of disease (he was observed by his father, who is a physician) until Oct. 16, 1939, when headache reappeared. The headache was worse on October 17, and he vomited several times on

October 18. The headache was localized over the frontal region and was so severe that he was brought to the Children's Hospital in Cincinnati on October 19 because of it.

Physical Examination.—On admission the boy appeared well developed and well nourished and he did not appear acutely ill but was pressing his hands against his forehead obviously suffering from severe headache. With the exception of a temperature of 101 F. (fig. 7), noticeable enlargement of the anterior and posterior cervical lymph nodes and slight enlargement of the inguinal nodes, the systemic examination was negative. The neurologic examination also was entirely negative. Especially noteworthy were the absence of nuchal rigidity, a definite Kernig's sign or abnormal reflexes. The fundi were normal.

Laboratory Data.—Lumbar puncture on October 19 yielded a clear fluid under an initial pressure of 170-200 mm. of water and a final pressure of 130 (after removal of 12 cc.). The fluid contained 200 white cells (mostly lymphocytes), 45 mg. of protein, 59 mg. of sugar and 685 mg. of chlorides. Culture was sterile. The blood count revealed 4.7 million red cells (13.3 Gm. of hemoglobin) and 20,800 white cells with 90 per cent polymorphonuclear neutrophils, 4 per cent lymphocytes and 6 per cent monocytes. The erythrocytes showed no stippling. The urine, tuberculin test and roentgenograms of the skull and bones of the hands and wrists and blood culture were all negative.

Course.—On October 20 at 5 a. m. the patient had a slight generalized convulsion with his eyes rolled up to the left and nystagmus to the left; the pupils were small and did not react



Fig. 6.—*Toxoplasma* as seen (a) free in stained films of peritoneal exudate or tissues, (b) intracellularly, (c) "pseudocyst" in film of brain. Wright's stain (X 800) reduced from a photomicrograph with a magnification of 1,000 diameters.

to light. This seizure lasted about two minutes. Several minutes later another seizure began during which he became cyanotic and had twitching of the right eyelid and forehead, and jerking of the left arm and hand, left foot and jaws. Twitching of the arm and face continued until about 6:30 a. m., after which he remained stuporous. He was irrational, confused and restless during the day and night, sleeping and crying or screaming at intervals.

On October 21 after a very disturbed night he rested quietly and showed much improvement, expressing the wish to read a newspaper that evening. Another lumbar puncture on this day yielded a clear, colorless fluid at a pressure of 200, with 300 lymphocytes, 35 mg. of protein, 62 mg. of sugar and 680 mg. of chlorides. A portion of this spinal fluid was used for animal inoculation.

Beginning with October 22 the boy seemed entirely well; he was bright, oriented, played, ate well and rested. He has remained well and no sequelae have been noted in subsequent months.

Animal Inoculations.—The patient's spinal fluid was injected intracerebrally and intra-abdominally into each of 2 guinea pigs and 6 mice. Because toxoplasmic infection was not suspected at the time, the mice were discarded when they remained well for five weeks. Between the fifth and sixth weeks both guinea pigs died within a day of each other and *Toxoplasma* was isolated by passage to other guinea pigs. The peritoneal exudate and viscera from 1 of the second passage guinea pigs dying on the tenth day contained large numbers of the organisms and were injected intracerebrally and intra-abdominally into

2 guinea pigs and 6 mice and intracutaneously into 2 rabbits. Although the 6 mice remained well for four weeks, passage of their brain and viscera to 5 other mice produced a fatal toxoplasmic infection in all of them in from four to seven days. In subsequent intracerebral passages the mice died regularly on the fourth and fifth days. One of the 2 guinea pigs died on the twenty-first day of a generalized toxoplasmic infection while the other one, still being well at the end of four weeks, was

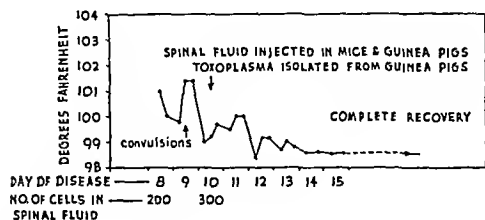


Fig. 7 (case 2).—Temperature in a case of probable toxoplasmic encephalitis.

killed and its brain was passed to 6 mice and 2 guinea pigs. The mice remained well while the 2 guinea pigs died of generalized toxoplasmosis, one on the twelfth day and the other on the twenty-fourth day. Both rabbits developed the typical necrotic skin lesions and fever,¹⁰ but only 1 of them died of the toxoplasmic infection while the other one recovered and was subsequently immune to reinoculation with the more virulent and regularly fatal R. H. strain (from case 1).

It is thus apparent that the W. B. D. strain (from case 2) was originally practically nonvirulent for mice and of considerably lesser virulence for guinea pigs and rabbits than the R. H. strain. In view of the fact that guinea pigs are known to be occasionally spontaneously infected with *Toxoplasma*, it is justifiable to question whether the W. B. D. strain was derived from the patient's spinal fluid. While the almost simultaneous death of both guinea pigs inoculated with this patient's spinal fluid and the failure to isolate *Toxoplasma* from at least 40 other guinea pigs which either were uninoculated or had received human spinal fluid or blood may favor the possibility that the W. B. D. strain is of human origin, the evidence cannot be regarded as absolutely conclusive.

Pathogenicity of the W. B. D. Strain for Other Species.—Using the virulent mouse-adapted W. B. D. toxoplasma, the same results were obtained in rhesus monkeys and chicks as with the R. H. strain.

Immunologic Identity.—The R. H. and W. B. D. strains were found to be immunologically identical not only with each other but also with *Toxoplasma* of animal origin. The methods used were the same as those which established the immunologic identity of the first human strain of *Toxoplasma* isolated from a case of congenital encephalitis with those of animal origin, i. e. cross neutralization of the skin lesions in rabbits with convalescent monkey serum and the resistance of rabbits recovering from infection with one strain to reinoculation with another.¹⁷

NEUTRALIZATION TESTS WITH HUMAN SERUM

Previous studies have shown that rhesus monkeys recovering from toxoplasmic infection as a rule developed neutralizing antibodies against the parasite, while rabbits usually became immune without such antibodies.³ The results obtained with the serum from patient 1 (fig. 8) suggest that neutralizing antibodies against *Toxoplasma* developed early in the disease and were present at death. While the antibody titer is rather low, it is nevertheless of the same order of magnitude that is developed by most convalescent monkeys. This amount of neutralization was never obtained with any convalescent rabbit serum, and no neutralization of any kind has been observed with at least fifteen human serums of various sorts. The serum obtained from patient 2 (W. B. D.) ten weeks after the onset of his illness had neutralizing antibodies neither against the

R. H. strain (fig. 8) nor against the W. B. D. strain. It should be noted here, however, that it has been observed that convalescent monkeys may lose their antibodies as early as six weeks after infection.²⁰ These results suggest that in future studies on human toxoplasmosis it would be advisable to test for neutralizing antibodies during the first three to four weeks after onset of the disease. While the presence of such antibodies would be strong evidence in favor of toxoplasmic infection, their absence would not be evidence against it.

The same serums from patients 1 and 2 were also tested for neutralizing antibodies against minimal doses of the viruses of St. Louis encephalitis, Eastern and Western equine encephalomyelitis, and lymphocytic choriomeningitis but none were found.

EPIDEMIOLOGIC CONSIDERATIONS

Although there can now be no doubt that *Toxoplasma* can infect human beings, there is as yet no indication how frequent such infection is. The probability is that it is a relatively rare disease which is transmitted to man from a reservoir of infection in lower animals. It should be noted, therefore, that in case 1 the family related that they had a half-grown cat in the house which became sick and had frequent convulsive seizures about the time their boy became ill. The boy was neither bitten nor perceptibly scratched by the cat. Unfortunately, the family disposed of the cat by abandoning it on an open road far from home. There was also a dog in the house but to the best of their knowledge no mice or rats. They lived in a house on the outskirts of the city and, while they were troubled to some extent by mosquitoes, they had not observed any ticks. The mother was certain that the only meat the boy had eaten was beef or pork and not rabbit or fowl. Three other children and both parents remained in good health

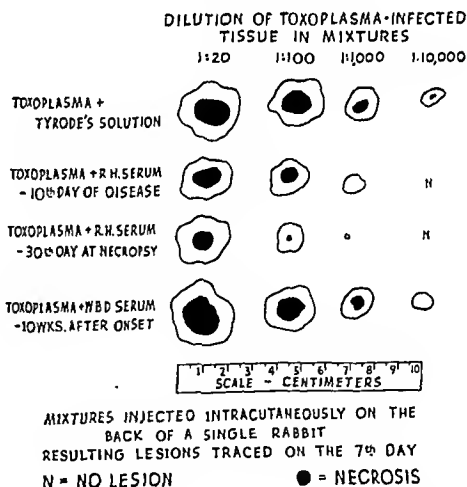


Fig. 8.—Neutralization test with R. H. strain and patient's serums.

during the entire period. In case 2 there was no history of exposure to animals or of eating any meat other than beef, pork or chicken.

There is also reason to believe that toxoplasmic infection may exist as a disease with only systemic manifestations, suggesting that one's alertness in detecting this type of infection should not be limited to patients with signs pointing to involvement of the nervous system.

DIAGNOSIS OF TOXOPLASMIC INFECTION

It is apparent from the two cases described in the present report that the diagnosis of toxoplasmic infection is made in the laboratory either after death of the patient or long after recovery. Work at present in progress on a complement-fixation test may overcome this difficulty, but until that is achieved it may be advisable to pursue the following procedure in a suspected case. While direct microscopic examination of the spinal fluid is obviously indicated in every case, it is doubtful whether *Toxoplasma* will thus be found except in rare cases in which the disease is especially destructive to the nervous system, as in infants during the first days or weeks of life.¹⁶ The spinal fluid or heparinized blood or both should be inoculated separately into mice and guinea pigs by the intracerebral and intra-abdominal routes. Six or more mice and two or more guinea pigs should be used. Abdominal distention in the animals should be watched for and, when it occurs, the presence or absence of peritoneal exudate should be ascertained by puncture and the fluid examined for *Toxoplasma*. If the mice remain well for a month, about half their number should be killed, Wright-stained films of the lungs and brain examined for *Toxoplasma*, and the brain, lungs, liver and spleen ground in Tyrode's solution, without the use of an abrasive, and injected into 6 other mice, which are in turn observed for evidence of toxoplasmic infection. The temperature of the original guinea pigs is recorded daily, and if they do not die by the end of the sixth week they should be killed and their brain and viscera passaged to other guinea pigs. Isolation of *Toxoplasma*, particularly on passage, from a single guinea pig cannot be regarded as evidence that they originated from the human material; if both the original guinea pigs succumb almost simultaneously, the probability of the human origin of the *Toxoplasma* organisms can be considered as being greater, particularly if an examination of the stock does not reveal spontaneous infection. If the guinea pigs succumb and the mice do not, a diligent study of the mice may reveal a strain of low original pathogenicity for mice. The simultaneous isolation of *Toxoplasma* from a number of different animals inoculated with human material must be regarded as strong evidence for their human origin. Biopsy and inoculation of animals with an enlarged lymph node may occasionally be advisable. When a protozoan resembling *Toxoplasma* is isolated, it should be identified either by its pathogenicity for a wide range of hosts or by immunologic tests or both.

In addition to attempts at direct isolation of *Toxoplasma*, the patient's blood should be tested for neutralizing antibodies from three to four weeks after the onset of illness, and whenever possible comparison should be made with a specimen obtained earlier or later in the disease.

SUMMARY

Two cases of clinically atypical encephalitis occurring in boys 6 and 8 years of age during October 1939 were investigated and definite evidence of the etiologic relationship of the protozoan parasite *Toxoplasma* was obtained in one and suggestive evidence in the other. The outstanding clinical features in both patients were generalized convulsions, disorientation, fever, pleocytosis without such signs of meningeal irritation as nuchal rigidity or Kernig's sign, and the absence of signs pointing to involvement of the cranial nerves. One died thirty days after onset and the other recovered completely on the tenth day.

The chief pathologic change, found in the nervous system only after many sections from various regions had been searched, consisted of microscopic necrotic and granulomatous foci, in the vicinity of which it was occasionally possible to find structures morphologically similar to *Toxoplasma*. Intracerebral and intra-abdominal inoculation of fresh brain suspension produced toxoplasmic infection in 5 of 8 mice which came from a stock that was proved to be free of spontaneous infection. Inoculation of mice with the spinal fluid and blood obtained on the tenth day of the disease, and with the blood and olfactory bulbs obtained post mortem, did not yield *Toxoplasma*. The strain of *Toxoplasma* isolated from patient 1 was found to be highly pathogenic for mice, guinea pigs, rabbits, chicks and rhesus monkeys. Neutralizing antibodies for *Toxoplasma* were shown to have developed in the patient's blood.

Spinal fluid from the second patient was inoculated into 6 mice and 2 guinea pigs. *Toxoplasma* was isolated from the guinea pigs, which died within a day of each other during the sixth week after inoculation. This strain (W. B. D.) of *Toxoplasma* was originally and even after several passages in guinea pigs practically nonvirulent for mice but became highly virulent after several mouse passages. The mouse-adapted W. B. D. strain was as pathogenic for the other species as the R. H. strain and they were found to be immunologically identical with each other and with *Toxoplasma* of animal origin.

ADULT TOXOPLASMOSIS

A PREVIOUSLY UNRECOGNIZED DISEASE ENTITY
SIMULATING THE TYPHIUS-SPOTTED
FEVER GROUP

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AND

RICHARD G. HENDERSON, M.D.

ST. LOUIS

Although *Toxoplasma* has been recognized as pathogenic for lower animals since 1900, our knowledge of human infection with this protozoan is in its infancy. The organism has only recently been established as the etiologic agent in a peculiar type of meningo-encephalitis in newborn infants, under circumstances which suggest prenatal infection and consequently imply latent or subclinical infection in the mothers of these infants. Six instances of this infantile disease entity have been reported to date.¹

The first proved case of adult toxoplasmosis was recently reported by one of us with Weinman.² In this case the clinical features were obscured by a concomitant infection with *Bartonella bacilliformis*. In the report the literature has been reviewed, and the criteria for the identification and differential diagnosis of the organism have been discussed. The probability that the infection might not be excessively rare was also pointed out at this time.

The present study is based on the occurrence, in St. Louis, of two fatal cases of an acute febrile, exanthematic disease in adults. Intracellular *Toxoplasma* organisms

Read in part before the St. Louis Pathological Society, Nov. 29, 1940.
From the Department of Pathology, St. Louis University School of Medicine.

1. Richter, Richard: Meningo-Encephalomyelitis Neonatorum, *Arch. Neurol. & Psychiat.* 36: 1085 (Nov.) 1936. Pinkerton and Weinman.² Wolf, Cowen and Pace.³ Maravino Torres.⁴ Wolf and Cowen.⁵

2. Pinkerton, Henry, and Weinman, David: *Toxoplasma* Infection in Man, *Arch. Path.* 30: 374 (July) 1940.

were found in the tissues in both of these cases in such numbers as to leave no doubt concerning their etiologic significance. The clinical picture of the disease had almost nothing in common with that of the previously reported cases in infants. The similarity of the clinical and pathologic pictures in these two cases, together with the apparently identical epidemiologic features, justify the assumption that we are dealing with a previously unrecognized disease entity which closely simulates Rocky Mountain spotted fever and endemic typhus and has many features in common with certain of the recently described atypical pneumonias. The frequency of this infection can be determined only by further observation and study. As an aid in such

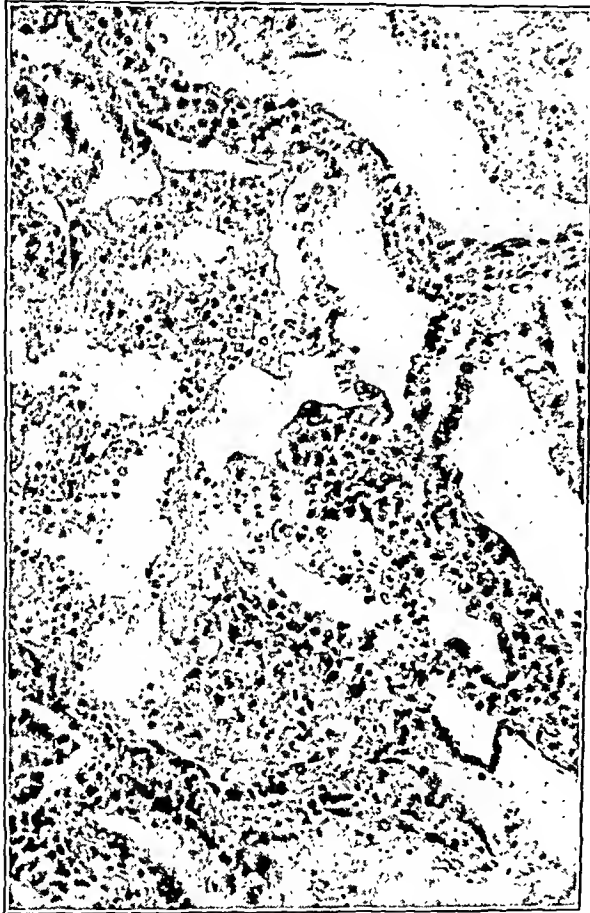


Fig. 1 (case 2).—Section of lung showing cuboidal metaplasia of alveolar lining cells and gelatinous exudate with hyaline membrane in alveolar sacs. Hematoxylin-eosin stain; $\times 225$.

studies, the differential diagnosis of the disease, and possible methods for its recognition during life and after death, will be discussed in the light of evidence brought out by this study.

REPORT OF CASES

CASE 1.—History.—A white man aged 50 entered the St. Mary's Hospital in St. Louis on June 11, 1940, complaining of fever, cutaneous rash and diarrhea. The diarrhea was of seven days' duration but had almost entirely ceased on admission. The fever and cutaneous rash were noted simultaneously twenty-four hours prior to admission but the patient had complained of weakness and malaise for a period of several days before the onset of these symptoms.

The patient had visited a Boy Scout camp near Ironton, Mo., for several week ends prior to the onset of the illness and was known to have removed an engorged tick from his abdomen on or about June 1. A clinical diagnosis of portal cirrhosis of

the liver had been made several months previously. During the past year, increasing dyspnea had been noted and occasional attacks of mild pain in the left chest had occurred. A non-productive cough had been present for several weeks.

Physical Examination.—The facial expression was dull and masklike. Voice sounds were distant over the base of the left lung, and dulness to percussion was found posteriorly over both lung bases. Coarse rales were heard in the same areas. There was enlargement of the cardiac area of dulness to the right and left. Blood pressure was 120 systolic and 64 diastolic; the pulse rate was 118 per minute; temperature was 106 F. rectally; the respiratory rate was 36 per minute.

There was a maculopapular eruption covering the entire body except for the scalp, the palms of the hands and the soles of the feet. The lesions varied from bright red to pale pink, and some of them appeared to blanch on pressure. Over the abdomen and lower part of the chest there was some coalescence of the lesions. No vesicles or pustules were observed. Except for their distribution, the cutaneous lesions were entirely consistent with those of Rocky Mountain spotted fever.

On admission, the white blood cells numbered 5,300 with 1 per cent juvenile forms, 12 per cent stab forms, 39 per cent segmented neutrophils, 17 per cent monocytes and 31 per cent lymphocytes. The erythrocyte count and hemoglobin were within normal limits. All blood chemistry was within the normal range except the blood cholesterol, which was 261 mg. per hundred cubic centimeters. Blood cultures were repeatedly negative. No malarial parasites were found in blood smears. Urine examination showed 2 plus albumin and 3 plus sugar. On microscopic examination of the sediment there were many cellular and hyaline casts, with numerous red and white blood cells. The stools were brown, and semisolid. Cultures were negative for organisms of the typhoid-dysentery group. Staphylococcus aureus and type IX pneumococcus were cultured from the sputum. Agglutination tests were negative with *B. proteus* X2, but positive with X19 in a dilution of 1:160. Electrocardiographic study revealed sinus tachycardia, respiratory sinus arrhythmia, left axis deviation, myocardial disease and transitory paroxysmal nodal rhythm. Biopsy of the skin of the chest was done on June 17, in an attempt to establish a diagnosis of spotted fever. Although the histologic picture in the skin was not inconsistent with this disease, no rickettsiae were found in the vascular lesions after long search.

Roentgen examination of the chest showed moderately heavy hilus shadows and lung markings throughout both lung fields, accentuated in the lung bases bilaterally and with irregular areas of increased density in the lower half of both lung fields. The cardiac shadow was enlarged to the left and downward.

The rectal temperature on admission was 106 F. and throughout the illness maintained an average 103-104 F., with morning remissions of 1 or 2 degrees. The pulse varied between 110 and 120 per minute with no relation to the rise or fall of the temperature. During the fourth day in the hospital the patient gradually became irrational and markedly cyanotic, refusing symptomatic treatment. Nasal oxygen was given, but in spite of all treatment the patient lapsed into coma and died on June 16. There was a terminal oliguria with a rise in the nonprotein nitrogen.

Postmortem Examination.—The eruption described during life was present on the skin, particularly on the face, shoulders and flexor surfaces of the arms. The liver and spleen showed the changes characteristic of moderately advanced portal cirrhosis, which will not be described, as they seem unrelated to the acute illness. The lungs were markedly congested, and a hemorrhagic, frothy fluid exuded from the cut surfaces. Uniformly distributed through all lobes of both lungs were firm, shotlike areas of induration, ranging from 1 to 3 or 4 mm. in diameter. The mesenteric lymph nodes were moderately enlarged. No other gross changes of importance were noted. The brain was not examined.

Microscopic Examination.—The lungs showed an interstitial pneumonitis, with rounding up of the alveolar lining cells, and areas of organization by connective tissue corresponding to the shotty nodules described grossly. In some areas there was also a fibrinopurulent exudate in the bronchioles and alveoli, but the

connective tissue proliferation was in the alveolar walls rather than in the alveoli. The heart showed prominent fusiform accumulations of mononuclear cells between apparently undamaged muscle fibers. The liver and spleen, in addition to the characteristic changes of portal cirrhosis, showed scattered small areas of focal necrosis consistent with those described in previously reported cases of toxoplasmosis.

The most important microscopic feature was the presence in the tissues of intracellular protozoa having the morphologic characteristics of *Toxoplasma*. Parasitized cells were fairly numerous in the spleen (particularly in the focal lesions mentioned) and were occasionally found in the lung. In the latter organ the cells containing the organisms were principally alveolar lining cells and alveolar macrophages, while in the spleen the invaded cells were those of the reticuloendothelial system. A single parasitized cardiac muscle fiber containing a group of 18 organisms was found after long search. Sections of skin representing the papules showed focal collections of inflammatory cells around blood vessels, both in the corium and in the subcutaneous fatty tissue. No protozoa were found in these lesions.

CASE 2.—History.—A white woman aged 43 entered the St. Mary's Hospital on Sept. 16, 1940, complaining of fever, cutaneous rash and increasing weakness. On September 1 the patient noted a feeling of weakness and malaise which continued for ten days. On September 10, six days before admission to the hospital, she experienced a chill followed by a sudden rise in temperature and a severe headache. The temperature remained elevated and on admission was 102.6 F. On September 13, three days before admission, a course of sulfanilamide (40 grains, or 2.6 Gm., daily) was begun. On the day of admission the patient developed marked cyanosis with nausea and blurring of vision. Sulfanilamide treatment was discontinued at this time and was not resumed.

The last week in August 1940 the patient spent at a country home near Warrenton, Mo. During her stay there she frequently removed ticks from dogs. Her husband stated that she removed two ticks from her leg at some time during this week but he could not recall the exact time.

Physical Examination.—The patient was well developed and well nourished. Her facial expression was dull and apathetic. The tongue was furred and the pharynx dry but not reddened. The respiratory rate was 24 per minute. The lung fields were resonant, and no rales were heard. A dry, unproductive cough was noted at the time of the examination. There was some tenderness in the left lower abdominal quadrant. The abdominal viscera were not palpable. Vaginal, rectal and neurologic examinations were negative.

The skin was warm and moist. The patient was perspiring freely at the time of examination. There was an erythematous maculopapular rash covering most of the body but sparing the palms of the hands, the soles of the feet and the scalp. The lesions were pale rose in color and did not fade on pressure. They were from 2 to 6 mm. in diameter and in some areas appeared to coalesce. The possibility was considered that the cutaneous rash might have been caused by the sulfanilamide. This point will be considered later.

On admission, the white blood cells numbered 10,050, with 2 per cent juvenile forms, 14 per cent stab forms, 60 per cent segmented neutrophils, 4 per cent monocytes and 20 per cent lymphocytes. The erythrocyte count, hemoglobin and platelet count were within normal limits, as were also the nonprotein nitrogen, blood sugar, blood chlorides and carbon dioxide combining power. No malarial parasites were found in the blood smears. The Kline test was negative. The urine was normal. Blood cultures up to the day of death were negative. The examination of the feces was negative for pus, ova and motile parasites, and cultures were negative for organisms of the typhoid-dysentery group.

Agglutination tests for typhoid, paratyphoid, dysentery and tularemia were negative. Positive agglutination with *B. abortus* in a dilution of 1:1,280 was found, but when repeated with a new antigen only partial agglutination in a dilution of 1:80 was obtained. On September 24, four days before death, agglutination tests with *B. proteus* X2 and X19 were negative at all dilutions higher than 1:20.

The clinical condition remained the same during the first five days in the hospital except that the cutaneous rash faded slightly during this period. On September 21, however, the patient suddenly developed cyanosis and marked dyspnea, the respiratory rate reaching 56 per minute. Rales were heard at both lung bases posteriorly. Examination of the chest with a portable x-ray apparatus showed a pronounced accentuation of the hilus shadows and lung markings of the lower lobes, suggesting pulmonary congestion. The cardiac shadow appeared normal. There was marked abdominal distention. Nasal oxygen was given with immediate improvement of symptoms.

On September 24, eight days after admission, the patient became irrational. Because of the respiratory difficulty, nasal oxygen was continued. At this time all normal reflexes of the lower extremities and abdomen were absent, and a positive

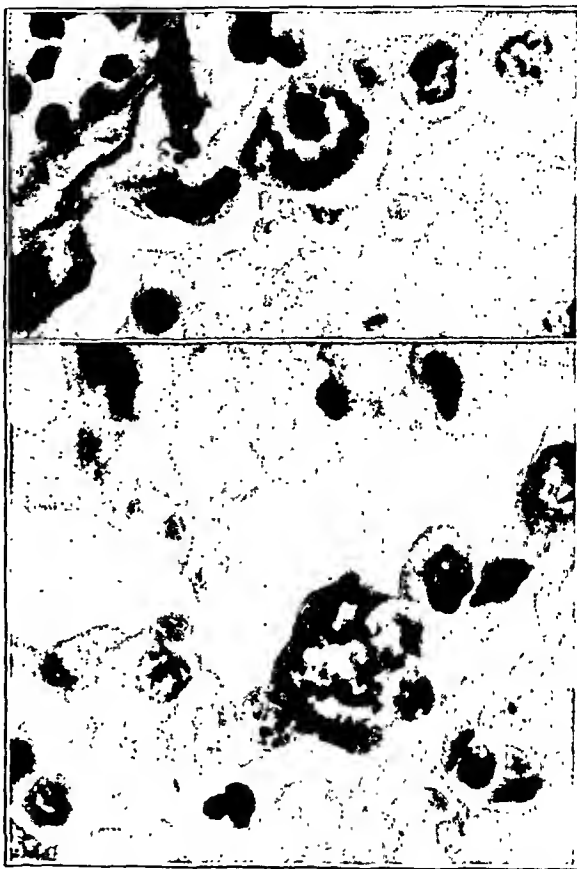


Fig. 2 (case 2).—Section of lung showing two alveolar lining cells loaded with *Toxoplasma*. Note the rounding up of the alveolar lining cells and the character of the alveolar exudate. (Parts of two separate alveoli are shown in this illustration.) Hematoxylin-eosin stain; $\times 1,000$.

Oppenheim reflex was elicited. There was no neck rigidity. Rocky Mountain spotted fever was considered as a possible diagnosis.

The temperature remained high, averaging 103-104 F. throughout the course of the illness. There were transitory remissions at irregular intervals, but rarely did the temperature approach normal. Terminally, the patient's hearing became very poor. Symptomatic treatment included small blood transfusions, and nasal oxygen was administered throughout the course of the illness. The patient died on September 28, twelve days after admission.

Postmortem Examination.—Petechial hemorrhages were noted on the parietal pleura. All lobes of both lungs were edematous and consolidated, the right lung weighing 750 Gm. and the left 680 Gm. The cut surfaces of the lungs were grayish white and, when scraped with the knife, yielded a frothy, grayish white, semifluid material. The spleen was normal in size. The mesenteric lymph nodes were moderately enlarged. The brain

showed marked congestion. No other gross changes of importance were noted. The provisional gross diagnosis was atypical pneumonia of possible virus origin.

Microscopic Examination.—The lungs showed a remarkable picture of interstitial pneumonitis, with interstitial organization in many areas (fig. 1). Practically every alveolus appeared to be lined with cuboidal epithelium. The alveoli contained a gelatinous appearing exudate in which very few inflammatory cells were present, and the alveolar walls were often lined with a thick, hyaline membrane similar to that seen in influenzal pneumonia (fig. 1). The heart showed rare necrotic muscle fibers with relatively little cellular reaction. The liver and spleen showed occasional areas of focal necrosis like those seen in



Fig. 3 (case 2).—Cardiac muscle fiber in longitudinal section, containing a large fusiform collection of *Toxoplasma*. Hematoxylin-eosin stain; $\times 1,000$.

case 1. *Toxoplasma* was not numerous in any of the tissues. Occasional alveolar lining cells, as well as macrophages lying free in the alveoli and bronchioles, were distended with these organisms (fig. 2), and a few myocardial fibers, otherwise normal in appearance, contained large colonies of organisms (fig. 3). These parasitized muscle fibers were so few in number that it was impossible to find them in many of the sections of the myocardium. *Toxoplasma* was also found in the hepatic and splenic lesions.

The brain showed occasional focal lesions (fig. 4) apparently centering around small capillaries and consisting of accumulations of small and large round cells with rare neutrophils. A few definite groups of *Toxoplasma* were found in these lesions after long search. The meninges were edematous and the sub-arachnoid space contained from 20 to 30 inflammatory cells per high power field. These inflammatory cells were chiefly macrophages and lymphocytes, with a few neutrophils. No organisms were found in the meninges.

TRANSMISSION OF THE INFECTION TO GUINEA PIGS AND MICE

On September 26, two days before the death of the patient, two male guinea pigs were inoculated, supposedly intraperitoneally, with 5 cc. each of citrated blood from patient 2. One of these animals died on the eleventh and the other became moribund and was killed on the thirteenth day after inoculation. The autopsy revealed practically identical observations in the two animals: caseation necrosis in the abdominal wall at the site of injection, enlargement of the liver and spleen, hemorrhagic lung consolidation, and softening and injection of the brain. In one animal the liver was studded grossly with minute yellowish foci of necrosis. Protozoa having all the characteristics of *Toxoplasma* were found in Giemsa-stained impression films of nearly all organs from these animals. The appearance of the organisms in films is shown in figure 5. They are crescentic or pyriform, with pale blue staining cytoplasm and large purple nuclei occupying the entire width of the cytoplasm and situated nearer the more pointed end. Their true shape is rarely seen in sections. Their approximate size in comparison to red blood cells may be seen in figure 5. Organisms were also numerous in the necrotic lesions at the sites of injection in the abdominal walls of the animals.

The infection has been transmitted serially in guinea pigs for seven generations by the intraperitoneal injection of emulsions of liver, spleen and brain. Animals injected in this way have shown no lesions at the sites of inoculation, but a mucinous peritonitis, with caseation necrosis of the omentum, has been added to the picture described in the animals injected with patient's blood. Animals injected subcutaneously have, however, shown necrotic foci in the abdominal wall, suggesting that the original injection with human blood may have been largely subcutaneous. The mortality in injected guinea pigs has been practically 100 per. cent, death occurring between the seventh and twelfth days.

Microscopic examination of guinea pig tissues has shown an accurate reproduction of the lesions of the patients, including the focal brain lesions and the myocardial involvement. In sections of eyes, granulomatous lesions have been seen under the conjunctiva. Retinal lesions have not been noted. Numerous specimens of *Toxoplasma* have been found in the lesions in paraffin sections of nearly all organs. In particular, the myocardial invasion seen in the patients (fig. 3) has been frequently duplicated.

On June 17, two male guinea pigs were injected intraperitoneally with 5 cc. each of blood from patient 1. The temperatures of these animals remained normal until the ninth day after injection, when one of them was found to have a temperature of 105.8 F. On the following day the temperature was 105.2 F., and this animal was killed. About 5 cc. of clear, mucinous exudate was present in the peritoneal cavity. Since this picture was inconsistent with spotted fever, and since toxoplasmosis was not considered as a possibility at that time, the peritonitis was assumed to be "secondary infection" and further investigation was not made. The other guinea pig was reported by the caretaker to have died a few days later. In the light of our present knowledge, it seems probable that these guinea pigs died of *Toxoplasma* infection, although the evidence is only presumptive.

The evidence given for the transmission of *Toxoplasma* infection to guinea pigs by inoculation with blood from patient 2 seems fairly conclusive. Both injected animals died of the infection, and organisms were numerous at the actual sites of inoculation. The possibility of bringing to light a latent spontaneous *Toxoplasma* infection in guinea pigs by the trauma of injection has, however, been pointed out in a previous publication.² In order to rule out this possibility as far as possible in the present instance, two procedures were carried out. In the first place, three guinea pigs from the same source as those used for the inoculation in case 2 were killed, and emulsions of brain, spleen and liver were pooled and injected intraperitoneally into three other guinea pigs of this same group. The tem-

peratures of these animals remained normal and the animals remained in apparently good health over an observation period of forty days. At this time they were killed, and no gross or microscopic lesions were found at autopsy. Secondly, the tissues of 10 guinea pigs from this same source which had been used for the routine diagnosis of tuberculosis (with negative results) were minutely examined, but no protozoa or lesions suggestive of *Toxoplasma* infection were found. These guinea pigs had been killed six to eight weeks after injection and were all negative to gross inspection at autopsy.

On October 6, brain and liver tissue removed post mortem from patient 2 and kept in glycerin in the ice box at 40 F. for eight days was emulsified and injected intracranially into twenty young Swiss mice. At this time the diagnosis had not been made, but a frozen section of the lung had supported the provisional gross diagnosis of atypical "virus" pneumonia. Consequently, 10 mice were injected with the unfiltered material and 10 with the material after passage through a Seitz filter.

The 10 mice injected with the filtered material showed no symptoms during an observation period of sixty days. Seven of the 10 mice injected with the unfiltered material died between the fifth and the tenth day after inoculation. The tissues of 3 of these mice were examined microscopically, and numerous intracellular *Toxoplasma* organisms were found in the brain, spleen and liver of 2 of these. At this time a paratyphoid infection (*B. typhi murium*) had been discovered in this strain of mice, and occasional normal mice were dying of this infection. The three experimental mice showed, in addition to the *Toxoplasma* infection, evidence of the paratyphoid infection in the form of extracellular and intracellular gram-negative bacilli in the tissues. Tissues of 10 mice dying spontaneously of the paratyphoid infection alone were minutely examined and *Toxoplasma* was not found.

Because of the paratyphoid infection, the *Toxoplasma* strain in mice could not be transmitted serially. The foregoing facts, however, strongly suggest that the

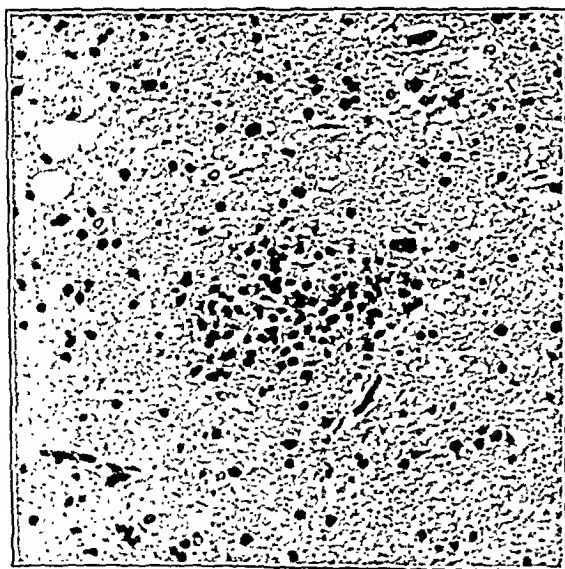


Fig. 4 (case 2).—Focal brain lesion. Note the resemblance of this lesion to the lesions seen in typhus and spotted fever. Hematoxylin-eosin stain; $\times 225$.

Toxoplasma organisms seen in the mice were of human origin and did not represent a latent infection in the mice. When added to the evidence of the transmission of the infection to guinea pigs, it seems clear, beyond a reasonable doubt, that the *Toxoplasma* infection was transmitted from patient 2 to both of these experimental animals.

Wolf and his co-workers³ undoubtedly transmitted human *Toxoplasma* infection to rabbits, infant mice, chicks and guinea pigs by intracerebral injections of brain tissue from one of their infantile cases. The observations reported here represent the first apparently successful transmission of *Toxoplasma* infection to animals by the injection of human blood. They suggest



Fig. 5.—*Toxoplasma* in Giemsa-stained film preparation from the omentum of guinea pig. Second passage of the infection in guinea pigs after isolation from blood of patient 2; $\times 1,000$.

that this procedure may be valuable as a method for making an accurate diagnosis.

CLINICAL FEATURES

It would be obviously unsafe to assume that the clinical descriptions of the 2 reported cases form a complete picture of the disease. Their almost complete identity, however, suggests that they may be taken as a tentative working basis. Prodromal symptoms consisting of malaise and weakness were present for several days before the onset of acute illness in each case. The onset of the acute illness was sudden, with chills and fever, and a variable but sustained elevation in temperature was present throughout the course of the disease. The duration of the fever was apparently six days in case 1 and eighteen days in case 2, but the presence or absence of slight fever during the prodromal stage is an unknown factor in each case. The pulse was rapid with some variations, not following the temperature fluctuations with any regularity.

A maculopapular eruption, involving the entire body but sparing the palms of the hands, soles of the feet and scalp, seems to be an important feature in the diagnosis from a purely clinical point of view. The significance of the cutaneous eruption in case 2 is somewhat doubtful, since it may conceivably have been caused by the administration of sulfanilamide. Long, Bliss and Feinstone⁴ report that only 1.6 per cent of 307 adults receiving large doses of this drug developed dermatitis and that this symptom was not seen before the fifth day of therapy. It seems unlikely that it could have occurred in the case reported here on the third day of therapy, particularly since the dosage used was small. It should also be pointed out that cutaneous lesions containing *Toxoplasma* were noted at autopsy in the single previously reported case of adult toxoplasmosis² and that cutaneous lesions were present in case 1 (reported here) in which chemotherapy was not used.

3. Wolf, Almer; Cowen, David, and Paige, Beryl: Human *Toxoplasmosis*: Occurrence in Infants as an Encephalomyelitis: Verification by Transmissions to Animals, *Science* 89: 226 (March 10) 1939.

4. Long, P. H.; Bliss, Eleanor A., and Feinstone, W. H.: Mode of Action, Clinical Use and Toxic Manifestations of Sulfanilamide, *J. A. M. A.* 112: 115 (Jan. 14) 1939.

Pulmonary involvement occurred in both cases and death appeared to be due primarily to interference with respiratory function. In case 2 the pneumonitis was recognized clinically and roentgenologically eleven days after the onset of fever and six days before death. At autopsy in this case the pulmonary lesions seemed to be in a relatively acute stage. In case 1 the pneumonitis was recognized on the day following the apparent onset of fever and five days before death. The postmortem observations in this case showed a somewhat older lesion, accompanied by focal areas of complete organization. It is therefore probable that in this case the pulmonary involvement began during the prodromal period.

A positive Oppenheim reflex was elicited in case 1 but, on the whole, evidence of meningeal or cerebral involvement was not striking. Although the cases were seen by clinicians of wide experience, indications for spinal fluid examination were not thought to be present.

It will be noted that the picture described, which may be accepted as essentially that of acute *Toxoplasma* infection in adults, has little in common with the clinical picture of the six previously reported instances of neonatal infection. In the infantile form retinitis, hydrocephalus and signs of meningo-encephalitis have been the outstanding features and, although 2 of the patients were said to have had "terminal pneumonia," respiratory signs and symptoms have not been stressed. Cutaneous eruption has not been mentioned in the infantile cases. In one case, however,⁵ focal lesions and *Toxoplasma* were found in the fatty subcutaneous tissue at autopsy. On the whole, there would seem to be little reason for connecting the adult form with the infantile form of the disease on the basis of the clinical observations.

Perhaps the most striking feature of the clinical picture is its resemblance to that of the rickettsial diseases, and because of the history of tick bite, more particularly to that of Rocky Mountain (or Eastern) spotted fever. For an account of the clinical features of the rickettsial disease, reference may be made to a recent discussion by Gordon.⁶ Evidence will be given for believing that even with complete postmortem examination toxoplasmosis could easily be mistaken for spotted fever or typhus unless *Toxoplasma* organisms are specifically and conscientiously looked for in tissues by one familiar with their appearance. It would therefore appear that, until the frequency of toxoplasmosis in different parts of the world is determined and methods for its accurate diagnosis are devised, local epidemics of exanthematic disease with a history of insect bite must be studied with great care. Previously reported atypical cases of spotted fever not confirmed by animal inoculation should also be restudied in the light of this new diagnostic possibility.

In typical spotted fever, the rash involves the palms of the hand, soles of the feet and scalp, a distribution not seen in typhus. It will be noted that the rash did not involve these regions in either of the two reported cases. Further observations must be made before it can be decided whether or not this feature has differential diagnostic value.

From the clinical point of view, interest centers about the pulmonary manifestations as of possible importance in the differential diagnosis. Pneumonia is a rather rare complication of spotted fever,⁷ while both of our patients had evidence of lung involvement, one on the first and the other on the fifth day after entering the hospital. At autopsy the involvement was of sufficient extent in each case to be regarded as the probable cause of death. Pulmonary involvement in typhus and spotted fever is secondary and terminal, while in the cases reported here the picture was that of a primary pneumonia, resembling that of the recently described "atypical pneumonia."⁸ The roentgen picture of the lungs may prove to be somewhat characteristic of the condition.

Spinal fluid examination may prove of diagnostic value, although data on this point are not available in our cases. Spotted fever has a negative spinal fluid, while typhus fever is said to show a slight increase in mononuclear cells and the fluid is not markedly turbid. In view of the definite meningeal involvement seen in sections in case 2, it seems probable that the spinal fluid would have shown an increased cell count and perhaps turbidity or other diagnostic features. One of the previously reported infantile cases of toxoplasmosis showed a spinal fluid cell count ranging up to 1,500 white blood cells per cubic millimeter, and in another case 800 red cells and 30 white blood cells per cubic millimeter were present.

THE PATHOLOGIC PICTURE

Without going into detail concerning the pathologic picture, which will be reported elsewhere, it may be stated that the gross and microscopic appearances are remarkably similar to those of typhus and spotted fever. The absence of splenic enlargement (case 2) and the pulmonary lesions (in both cases) are the only gross features of possible differential value. Histologically the focal brain lesions (in case 2) and the myocarditis (in both cases) are, as far as we are aware, indistinguishable from the lesions in both typhus and spotted fever.⁹ The pulmonary lesions are unusual and possibly pathognomonic. Aside from this, the diagnosis depends on finding the intracellular protozoa in the tissues.

The pulmonary lesion bears a rather striking resemblance to that described in cases of atypical pneumonia of unknown etiology.¹⁰ Clinically also there are many similarities between our cases and certain of the reported cases of atypical pneumonia. Previous to the discovery of the intracellular protozoa, this was believed to be the most probable diagnosis in case 2.

The massive invasion of myocardial fibers found in case 2 (fig. 3) could scarcely be overlooked in a careful examination, although invaded fibers were not numerous and were unaccompanied by cellular infiltration. They were not present in all sections of the myocardium, however, and in case 1 only one invaded heart muscle fiber was found after a prolonged search. Parasitized cells were by no means numerous in the lung in either case and were definitely rare in the brain. Tissues must be examined with great care to exclude the diag-

7. Wolbach, S. B.: Rocky Mountain Spotted Fever, in Cecil, R. L.: Textbook of Medicine, ed. 5, Philadelphia, W. B. Saunders Company, 1940, p. 106.

8. Kneeland, Yale, and Smetana, H. F.: Current Bronchopneumonia of Unusual Character and Undetermined Etiology, *Bull. Johns Hopkins Hosp.* 58: 229 (Oct.) 1940. Longcope.¹⁰ Reinman.¹²

9. Wolbach, S. B.; Todd, J. L., and Palfrey, F. W.: The Etiology and Pathology of Typhus, Cambridge, Mass., Harvard University Press, 1922. Lillie, R. D.: Pathology of the Eastern Type of Rocky Mountain Spotted Fever, *Pub. Health Rep.* 46: 2840 (Nov. 27) 1931.

10. Longcope, W. T.: Bronchopneumonia of Unknown Etiology (Variety X): A Report of Thirty-Two Cases with Two Deaths, *Bull. Johns Hopkins Hosp.* 58: 268 (Oct.) 1940. Kneeland and Smetana.⁸

5. Magarinos Torres, C.: Sur une nouvelle maladie de l'homme, caractérisée par la présence d'un parasite intracellulaire, très proche du *Toxoplasma* et de l'Encéphalitozoon, dans le tissu musculaire cardiaque, les muscles du squelette, le tissu cellulaire sous-cutané et le tissu nerveux, *Compt. rend. Soc. de biol.* 97: 1778, 1927; Morphologie d'un nouveau parasite de l'homme, *ibid.* 97: 1787, 1927; Affinités de l'encéphalitozoon paragasii, *ibid.* 97: 1797, 1927.

6. Gordon, J. E.: The Clinical Features of the Rickettsial Diseases, in Harvard School of Public Health Symposium: Virus and Rickettsial Diseases, with Especial Consideration of Their Public Health Significance, Cambridge, Mass., Harvard University Press, 1940, p. 828.

nosis of toxoplasmosis in autopsy material showing lesions of the type described. The demonstration of the rickettsiae of typhus and of spotted fever in tissues is likewise attended with great difficulties. In case 1, although tissues were studied for many hours in an unsuccessful attempt to demonstrate the rickettsiae of spotted fever, it was not until the slides were carefully restudied in the light of the observations in case 2 that *Toxoplasma* was found and the diagnosis was made.

The staining of the organisms in the cytoplasm of cells requires further study. In many apparently well stained sections the organisms appeared as homogeneous spherical eosinophilic bodies which could easily have been mistaken for colloid droplets or other structures of a nonspecific nature, while in other sections from the same paraffin block, stained somewhat differently, their structural detail was clearly visible.

EPIDEMIOLOGIC CONSIDERATIONS

Up to the present time nothing has been learned about the epidemiology of toxoplasmosis, although the mere fact of its occurrence in lower animals would suggest the possibility of an arthropod vector. In the reported infantile cases the presence of retinal lesions at birth presupposes subclinical infection of the mothers, but the mode of infection in the mothers and the exact method of transmission to infants remain obscure.

The occurrence of the two adult cases reported here in the late summer months and the definite antecedent history of the removal of engorged ticks a few days before the onset of the illness in each case forces one to consider the possibility that the disease may be tick borne. Attempts were made, as soon as the nature of the disease was recognized, to obtain ticks from the country home visited by the second patient. Frost had already occurred, however, and it was necessary to defer this part of the study until spring.

It must be borne in mind that, although spotted fever is probably exclusively tick transmitted, a definite history of tick bite is not always obtained. Contamination of the skin with tick viscera as a result of crushing ticks while removing them from dogs undoubtedly accounts for many cases, and ticks may become attached and drop off without the knowledge of the victim. The possibility that toxoplasmosis may be transmitted by ticks is being investigated experimentally in this laboratory. The fact that *Toxoplasma*, like *Plasmodium malariae*, belongs to the Sporozoa, suggests that the experiments should include mosquitoes.

The direct transmission of the disease from person to person by droplet infection is also suggested as a possibility by the finding of *Toxoplasma*-laden macrophages in the alveoli and bronchioles. Experiments are in progress to determine whether lower animals may be infected by the respiratory route.

LABORATORY DIAGNOSIS

In discussing the diagnostic problems raised by the observations reported here, it may be well to review the methods for the identification and differential diagnosis of the rickettsial diseases. A detailed discussion of these methods has been given by one of us¹¹ and those

methods which are of possible practical use in the present problem will be considered here.

White Blood Cell Count.—The low leukocyte count in the reported cases, in the presence of pulmonary consolidation, may be of diagnostic importance. In this respect the cases resemble those of atypical pneumonia reported by various workers.¹²

Weil-Felix Reaction.—This reaction is of considerable diagnostic value, but too much reliance should not be placed on it. In typhus, agglutination in high titer with *Proteus* OX19 and in relatively low titer with OX12 is the characteristic finding, while, in spotted fever, agglutination is usually obtained in relatively low titer with both OX2 and OX19. In one of the cases reported here (case 2) the Weil-Felix reaction was negative, while in the other (case 1) it was positive with OX19 in a dilution of 1:160. Recent observations here (unpublished) indicate that a positive reaction in this dilution may often be found in a variety of conditions and that it can therefore have little significance. The Weil-Felix reaction in animals experimentally infected with *Toxoplasma* is under investigation.

Skin Biopsy.—In spotted fever a definite diagnosis can frequently be made by demonstrating rickettsiae in the endothelial cells and smooth muscle cells of arteriolar walls. In typhus fever, rickettsiae are found with greater difficulty and may be recognized by the fact that they are found only in endothelial cells. This method is of value, however, only in the hands of an experienced observer. In case 2, no definite *Toxoplasma* organisms were seen either in the cutaneous lesions excised during life or in those excised post mortem. It should be pointed out, however, that *Toxoplasma* was easily seen and recognized in cutaneous lesions excised post mortem in the first adult case reported by one of us with Weinman.²

We are not able at present to state that the cutaneous lesions of toxoplasmosis, typhus and spotted fever can be distinguished from one another by purely histologic examination, although suppurative involvement of the subcutaneous fatty tissue seems to be more characteristic of toxoplasmosis. Biopsy should be done in doubtful cases, however, since it is probable that *Toxoplasma* may be found in some cases, while the demonstration of rickettsiae will exclude toxoplasmosis in other cases.

Animal Inoculation.—It has long been realized that transmission to guinea pigs by inoculation with patient's blood is the sine qua non for accurate diagnosis of the rickettsial diseases. The procedure is a simple one, and its general adoption would be of great value in solving the problems raised by the observations presented here. Typhus and spotted fever are readily transmissible to guinea pigs by this method and easily differentiated from each other by cross immunity tests with known strains. It would appear from our observation that toxoplasmosis is transmissible to guinea pigs by the same method and that the diagnosis can be easily established by finding the organisms in smears and sections of the animal tissue. Precautions to be observed in excluding the possibility of spontaneous infection in the animals used for the test should include the inoculation of control animals with normal human

11. Pinkerton, Henry: Criteria for the Accurate Classification of the Rickettsial Diseases (Rickettsiosis) and of Their Etiological Agents, *Parasitology* 28:172 (April) 1936; The Diagnosis and Classification of Rickettsial Diseases, Virus and Rickettsial Diseases, in Harvard University School of Public Health Symposium: Virus and Rickettsial Diseases with Especial Consideration of Their Public Health Significance, Cambridge, Mass., Harvard University Press, 1940, p. 817.

12. Reinman, H. A.: An Acute Infection of the Upper Respiratory Tract with Atypical Pneumonia, *J. A. M. A.* 111:2377 (Dec. 24) 1918; Kneeland and Smetana.⁸ *Longcope.*¹³

blood, as well as the use of stock animals proved, as far as possible, to be free from the infection.

Neutralization Tests.—By mixing immune serum from a patient with the viruses of typhus and spotted fever and then injecting the mixtures into guinea pigs, it is possible to establish or exclude the diagnosis of these diseases with a fair degree of accuracy. This test should be used more frequently to make the diagnosis in cases in which recovery occurs and in which guinea pig inoculation has not been done or has given negative results. In cases in which recovery occurs which are negative for both typhus and spotted fever by this method, the test described in the following paragraph might give significant results:

Sabin and Olitsky¹³ and Sabin,¹⁴ working with Toxoplasma infection in lower animals, have developed a rabbit cutaneous protection test based on the protective action of immune monkey serum against the inoculation of virulent strains of Toxoplasma. It seems probable that this method could be used for the diagnosis of toxoplasmosis in man, although it is doubtful whether it would be of value in the early stages of the disease.

Spinal Fluid Examination.—The potentialities of spinal fluid examination as a diagnostic method have already been mentioned. Although the cerebral lesions in the cases reported here are less conspicuous than those in the reported infantile cases, the microscopic appearance of the meninges in case 2 suggests that important spinal fluid changes may have been present. Incidentally, in one of the infantile cases, Toxoplasma was found in considerable numbers in the sediment of the spinal fluid¹⁵ and it is possible that a diagnosis could be made in this way in adult cases.

Examination of the Blood for Toxoplasma.—Toxoplasma infection was transmitted to each of two guinea pigs by the intraperitoneal injection of 5 cc. of blood from patient 2. Careful examination of a blood smear from patient 2 gave negative results, and the organisms are probably so rare in the peripheral blood that this method may have little diagnostic value. We have, however, found occasional organisms after long search in blood smears from infected guinea pigs.

Examination of Sputum for Toxoplasma.—It has been brought out in the pathologic descriptions that the alveoli and in one case the bronchioles contained macrophages distended with protozoa. Since toxoplasma organisms are easily recognized morphologically in smear preparations (fig. 5), it seems probable that sputum examination may prove to be a simple and accurate method of diagnosis. Guinea pig inoculation with sputum, preferably subcutaneously to avoid causing bacterial peritonitis, also suggests itself as a procedure of possible value.

Culture Methods.—Toxoplasma has been grown on the developing egg embryo and would probably grow in Maitland medium. The possibility of using these methods for growing the organism directly from circulating blood should not be overlooked. If this proves to be possible, it will probably be a more rapid method than animal inoculation and will have the added advantage of excluding more definitely the hazard of spontaneous infection in the test animals.

SUMMARY AND CONCLUSIONS

Two fatal cases of Toxoplasma infection in adults were observed. The clinical features of the disease have almost nothing in common with those of the previously described cases of neonatal infection with this protozoon, the picture being essentially that of an acute febrile exanthematic disease with atypical pulmonary involvement and, in fatal cases, death from respiratory embarrassment.

Pathologically also the picture differs widely from that of the infantile type, the outstanding feature being a peculiar type of interstitial pneumonitis, with rounding up of the alveolar lining cells and interstitial organization by connective tissue. Meningoencephalitis, though present, is not conspicuous. The pathologic features common to the infantile and the adult type are focal brain lesions, myocarditis and the presence of Toxoplasma in the lesions.

Both clinically and pathologically the disease is remarkably similar to Rocky Mountain spotted fever and may easily be mistaken for the latter disease, even with a complete and careful postmortem examination, unless the organisms are conscientiously searched for in tissues by one familiar with their appearance. The cases reported have also many clinical and pathologic features in common with certain recently reported cases of atypical pneumonia of unknown etiology. The assumption that toxoplasmosis is a rare disease is therefore not justified.

The disease was transmitted readily to guinea pigs by inoculation of blood taken from at least one of the patients during life and to mice by the intracranial inoculation of autopsy material from the same patient. This statement is made with the reservation that the inoculation may conceivably have brought to light a previously existing spontaneous Toxoplasma infection in the guinea pigs and mice employed, a possibility which, for reasons given, is believed to be remote. Toxoplasma infection has not previously been transmitted to laboratory animals by inoculation with human blood.

The observations presented in this paper introduce a new factor of uncertainty in the differential diagnosis of the acute exanthematic diseases, particularly those of the typhus-spotted fever group. At present the most practical method for accurate diagnosis is the transmission of the infection to experimental animals. Animal inoculation should therefore be done more frequently in isolated cases and small local outbreaks of diseases of this group, in an attempt to determine the frequency and importance of toxoplasmosis in various sections of the country.

In cases of obscure acute febrile illness with (or without) a rash resembling that of typhus or spotted fever, clinical and roentgen evidence of diffuse atypical pneumonitis may suggest the diagnosis. The presence of Toxoplasma-laden macrophages in alveoli and bronchioles indicates that the diagnosis might be made from Giemsa-stained films of the sputum, a diagnostic procedure which has, as far as we are aware, never been employed. The possible importance of spinal fluid examination as a diagnostic measure should also be considered in view of the meningeal involvement noted in one of the reported cases.

Purely circumstantial evidence suggests that the disease may be transmitted by ticks. The presence of organisms in bronchioles also indicates that direct droplet transmission from person to person may take place. These possibilities are being investigated.

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14. Sabin, A. B.: Biological and Immunological Identity of Toxoplasma of Animal and Human Origin, *Proc. Soc. Exper. Biol. & Med.* 41: 75 (May) 1939.

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CONSECUTIVE ATTACKS OF PNEU-
MOCOCCIC PNEUMONIAREPORT OF A CASE EXHIBITING FOUR RELAPSES
DUE TO FOUR PNEUMOCOCCUS TYPES

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Recurrence occurs more commonly in pneumonia than in any other acute infectious disease. The incidence of one or more previous attacks has been noted by various writers as from 13.6¹ to 41 per cent.² Repeated attacks in the same case are not unusual. Cases in which there were from ten³ to twenty-eight⁴ attacks have been reported. Of the cases cited by Cole,⁴ thirty gave a history of more than one previous attack of pneumonia. In eighteen of these there were two previous attacks, in nine there were three, in two there were four and in one there were eighteen. The interval between

occurrence of a fresh invasion of the same or different lobe appears several days after the subsidence of an original attack. As Finland⁵ points out, relapse may be due to (a) reinfection by the pneumococci which produced the original infection, (b) pneumococci of a different type or (c) some other organism, usually hemolytic streptococcus or staphylococcus. The importance of this observation has been stressed by Bullowa,⁷ Cole,⁸ Cecil⁹ and Lord and Heffron¹⁰ in discussing the failure of specific therapeutic agents. A survey of the literature reveals little detailed study on the incidence of consecutive pneumococcic infections. Although Norris¹¹ reported that 0.06 per cent of a series of 5,966 patients suffered relapse, no bacteriologic data were presented. Finland, Spring and Lowell¹² noted three cases in 1,037 in which relapse was produced by pneumococci of types other than those causing the original infection. We were unable to find any case in which more than one such consecutive infection was recorded. Thus our purpose in this communication is to present the complete study of a case in which four types of pneumococci were definitely shown to be etio-



Fig. 1.—Appearance of chest on admission, showing dense consolidation of the left upper lobe (portable film). Type II pneumococci in blood and sputum.



Fig. 2.—Appearance on fifteenth hospital day. The area of consolidation in the left lower lobe can be clearly seen. There is some residual infiltration in the left upper lobe, although marked clearing has occurred. Types XXIV, II and VI pneumococci recovered from sputum.



Fig. 3.—Appearance on twenty-sixth day of hospitalization. The left lung field is clear. A new area of consolidation is noted in the right lower lobe. Sputum contains pneumococci type XX.

recurrences is significant. In Cole's series 107 patients had only one previous attack and in only nine of these it had occurred within one year. In thirty-eight the initial attack had occurred from one to five years before, in nineteen from five to ten years earlier, in twenty-five from ten to twenty years previously and in sixteen more than twenty years before. In a carefully studied series of fifty-seven cases reported by Finland and Winkler⁵ the shortest interval between infections was four weeks and the longest nearly twelve years.

In striking contrast to the frequency of recurrence in pneumococcic pneumonias is the fact that relapse is a rare phenomenon. Although the distinction between relapse and recurrence may be arbitrary, we would limit the term relapse to those instances in which the

logic agents in the production of four consecutive pulmonary lesions, all of which occurred within a period of fifty days.

PROTOCOL

History.—P. C., a white man aged 25, entered the University of Chicago Clinics Jan. 6, 1940, complaining of pleural pain, chills, fever and cough productive of bloody sputum. These symptoms had appeared suddenly three days before admission and were increasing in severity. The past history was non-contributory.

Physical Examination.—The temperature (rectal) was 103.8 F., pulse rate 110, respiratory rate 28. The blood pressure

6. Finland, Maxwell: The Significance of Mixed Infections in Pneumococcic Pneumonia, *J. A. M. A.* **103**: 1681-1686 (Dec. 1) 1934.

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8. Cole, Rufus: Serum Treatment of Type I Lobar Pneumonia, *J. A. M. A.* **95**: 741 (Sept. 7) 1929.

9. Cecil, R. L., and Plummer, Norman: Pneumococcus Type I: Study of 1,161 Cases with Especial Reference to Specific Therapy, *J. A. M. A.* **95**: 1547 (Nov. 22) 1930.

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11. Norris, G. W., and Landis, H. R. M.: Diseases of the Chest and the Principles of Physical Diagnosis, ed. 6, Philadelphia and London, W. B. Saunders Company, 1938, p. 810.

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2. Lord, F. T.: Diseases of the Bronchi, Lungs and Pleura, ed. 2, Philadelphia and New York, Lea & Febiger, 1925, p. 281.

3. Patterson, W. S.: Prognosis of Lobar Pneumonia and the Influence of Serum in Treatment, *M. J. Australia* **2**: 115 (July 29) 1922.

4. Cole, R. L.: Acute Lobar Pneumonia, in *Nelson's Loose Leaf Living Medicine*, New York, Thomas Nelson & Sons **1**: 203, 1920-1928.

5. Finland, Maxwell, and Winkler, A. W.: Recurrences in Pneumococcus Pneumonia, *Am. J. M. Sc.* **188**: 309 (Sept.) 1934.

was 90 systolic, 50 diastolic. The patient was well developed and well nourished. He appeared acutely ill. The face was flushed and the skin was hot and dry. Cyanosis was absent. The pharynx was injected and granular. There was definite limitation of movement of the left chest. A friction rub was palpable in the left axilla. Over the upper half of the anterior and posterior left lung field, dullness to percussion, increased vocal and tactile fremitus, bronchial breathing and moist rales could be demonstrated. A coarse friction rub was heard in the left axilla. The remainder of the physical examination was not remarkable.

Laboratory Examination.—The leukocyte count was 11,200 with 76 per cent polymorphonuclears; the hemoglobin content was 12 Gm. (Sahli) and the red cell count 3,700,000. The urine contained a trace of albumin and occasional red and white blood cells. The sputum contained many pneumococci found to be type II by direct Neufeld reaction and mouse inoculation. A blood culture taken on admission contained type II pneumococci. All subsequent blood cultures were negative. X-ray examination of the chest showed consolidation of the left upper lobe (fig. 1). The Francis test¹³ with type II specific soluble substance was negative. Ophthalmic and intradermal tests with rabbit serum were negative.

Hospital Course.—Immediately following identification of type II pneumococci in the sputum, 200,000 units of type II antipneumococcus rabbit serum was administered intravenously.

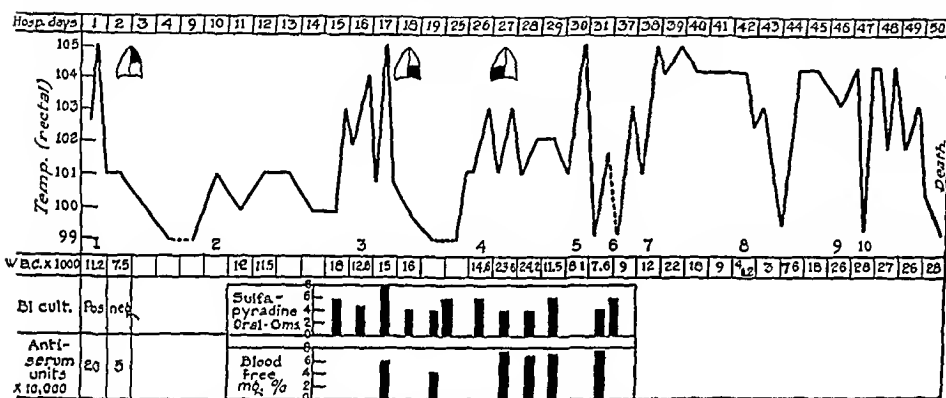


Fig. 4.—Hospital course: 1. Type II pneumonia, left upper lobe. 2. Rabbit serum sickness. 3. Type II, VI and XXIV pneumonia, left lower lobe. 4. Type XX pneumonia, right lower lobe. 5. Transfusion reaction. 6. Icterus noted; hemolytic anemia. 7. Thrombophlebitis. 8. Granulocytopenia. 9. Lung abscess, right lower lobe. 10. Cellulitis, right thigh.

An additional 50,000 units was given the following morning when the admission blood culture was found to be positive and the temperature still elevated. There was striking improvement following this therapy and the patient felt well until the tenth hospital day, when he developed serum sickness. The polyarticular pains, urticarial rash, leukocytosis and fever responded to the usual symptomatic measures. X-ray examination showed almost complete clearing of the previously involved left upper lobe.

On the morning of the fifteenth hospital day the patient complained of sudden sharp pain in the left lower chest and began raising moderate amounts of "rusty" sputum. The temperature rose to 103 F. A friction rub was present in the left axilla and signs of consolidation could be demonstrated in the left lower chest. X-ray examination showed pneumonic involvement of the left lower lobe (fig. 2). Bacteriologic studies of the sputum revealed pneumococci types II, VI and XXIV, the predominant type both on direct examination and following mouse inoculation being XXIV.

In view of a possible concurrent mixed pneumococcal infection, recent presence of serum sickness and a strongly positive intradermal and ophthalmic reaction to rabbit serum, it was decided to use sulfapyridine as our therapeutic agent. The drug was administered as suggested by Evans and Gaisford¹⁴

and within seventy-two hours clinical and subjective improvement occurred. After four days of normal temperature, sulfapyridine was discontinued. At no time was there any indication of drug intolerance. Chest roentgenograms showed clearing.

On the twenty-sixth day of hospitalization, six days after cessation of sulfapyridine, the patient noticed pain in the right lower chest and once more a cough productive of rusty sputum appeared. The temperature rose to 103 F. with a corresponding leukocytosis. Examination of the chest revealed signs of consolidation at the right lung base. X-ray examination showed a new area of pneumonia, this time in the right lower lobe (fig. 3). Examination of the sputum revealed pneumococci in large numbers which appeared to consist entirely of type XX. Sulfapyridine therapy was reinstituted, the same program of dosage being used as previously. There was little improvement; the temperature, pulse and white blood cell count remained elevated. The patient grew much weaker and continued to bring up blood streaked sputum. A microcytic anemia of 3.0 million red blood cells and 9 Gm. (Sahli) of hemoglobin developed. The following day 700 cc. of citrated blood was given with no untoward effects. Clinical jaundice was observed eight days after the resumption of sulfapyridine. Sulfapyridine was immediately discontinued, 32 Gm. having been given during this course, making a total drug intake of 65 Gm. over a period of nineteen days.

The patient continued to raise moderate amounts of sputum, containing frank blood which gradually changed to small dark clots. A pulmonary infarct was suspected although the source of an embolus could not be demonstrated. Electrocardiographic examination and the blood nonprotein nitrogen were normal. The temperature fell slowly after cessation of sulfapyridine administration but on the thirty-seventh hospital day thrombophlebitis of the right femoral and popliteal veins developed, with severe edema and pain of the entire right leg. This was accompanied by a sharp rise in temperature and leukocytes.

Within four days the patient had grown much worse, the temperature ranged around 104 F. and the pulse rate was 140 per minute. Jaundice became more intense and bile appeared in the urine. The blood bilirubin was 1.4 mg. per hundred cubic centimeters. The blood nonprotein nitrogen remained normal. He now complained of soreness of the throat, and the pharynx was found to be injected and edematous; a small yellowish gray membrane was observed in the right tonsillar fossa. Smears and cultures of this area failed to show fusospirochetes or Klebs-Loeffler bacilli. Within twenty-four hours the white blood cell count had dropped from 18,000 to 9,000 and the polymorphonuclears from 76 per cent to 64 per cent. The pharynx appeared much worse, and the membrane now covered both tonsillar fossae and several small areas of ulceration and necrosis appeared on the posterior pharyngeal wall. On the following day there was further extension of the pharyngeal ulceration and necrosis. At 8 a. m. the white blood count was 4,000; three hours later it had dropped to 1,200 with 6 per cent polymorphonuclears. Oozing of blood from the gums was noted. Prothrombin was 29 per cent of normal. A transfusion of 300 cc. of citrated blood was given with resulting rise in the white blood cells to 2,000 with 10 per cent polymorphonuclears. Repeated transfusions of 700 cc. and 800 cc. were given on successive days. Gingival bleeding ceased, the pharynx showed rapid improvement and the white blood cell count rose to 28,000 with 86 per cent polymorphonuclears. Prothrombin determinations returned to normal.

The patient then began raising progressively increasing amounts of sanguinopurulent sputum and the possibility of a

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14. Evans, G. M., and Gaisford, W. F.: Treatment of Pneumonia with 2(p-Aminobenzenesulfanamido) Pyridine, *Lancet* 2: 14 (July 2) 1938.

lung abscess was considered. X-ray examination corroborated this impression, showing evidence of excavation in the previously described area of consolidation in the right lower lobe. The temperature became septic in type, cellulitis developed in the right upper leg, and the jaundice increased. Despite postural drainage and intensive supportive measures, respirations ceased on the fiftieth hospital day.

Postmortem Examination.—Both pleural cavities were obliterated by delicate fibrous adhesions. A small encapsulated empyema cavity was present over the posterior right lower lung. The right lung contained an abscess in the lower lobe and resolving lobar pneumonia of the middle and upper lobe. An organized thrombus could be seen in the branch of the pulmonary artery leading to the right lower lobe. The left lung showed resolving lobar pneumonia in the upper lobe and beginning pneumonic consolidation of the lower lobe. The liver was enlarged and demonstrated cloudy swelling and passive congestion. There was moderately far advanced cloudy swelling of the kidneys with beginning tubular degeneration. The right femoral vein contained a large organized thrombus and was surrounded by a large area of induration. Culture of the left lower lobe revealed type VI pneumococci. Agglutinins for types II, VI, XX and XXIV were demonstrated in the blood serum.

COMMENT

Evaluating the results of the bacteriologic studies, one must conclude that this case demonstrates an unusual instance of superinfection with four pneumococcus types. Although the third pulmonary infection was probably preceded by an embolus, the infarcted area was invaded by type XX pneumococcus. The clinical significance of these consecutive infections has been discussed at length in the literature dealing with specific serum therapy, but we stress again the importance of repeated bacteriologic examinations in cases of pneumococcal infections in which there is "relapse."

The toxic effects of sulfapyridine are well known and have been described by many workers.¹⁵ However, it is of interest to note the occurrence of both acute hemolytic anemia and granulocytopenia as complications of drug therapy in this case and the appearance of the latter eight days after the cessation of sulfapyridine. Barnett¹⁶ and Dolgopol¹⁷ point out that damage to the bone marrow may manifest itself only after discontinuance of sulfapyridine, and included in the reports noted are occasional examples corroborating this observation. In one case of Thompson's¹⁸ hemolytic anemia appeared three weeks subsequent to sulfapyridine administration. It would be of value, therefore, to examine the blood of all treated patients one month after cessation of the drug.

The total drug intake of 65 Gm. is of interest. Evans and Gaisford¹⁴ state that in their experience the highest total dosage administered to adults producing no damage to the hematopoietic system was 49.5 and 51 Gm. They suggested limiting sulfapyridine dosage to 25 Gm.

Although more recent studies include patients receiving larger amounts, it is felt by Dolgopol and Hobart¹⁷ that most hematologic changes appear in those cases in which a large total of the drug is administered. The occurrence of individual sensitivity to small quantities of sulfapyridine has been reported but it probably plays a minor role in the production of blood changes. When possible, therefore, as a measure of safety the intake of the drug should be kept within a limit of 25 Gm.

POSTOPERATIVE PERITONEAL GRANULOMATOUS INFLAMMATION

CAUSED BY MAGNESIUM SILICATE

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We have been interested for some time in the reactions caused by lycopodium powder and magnesium silicate in the tissues. Reactions initiated by foreign body substances are responsible for surgical complications which are frequently unrecognized. They are of great importance to the surgeon because of the subsequent mortality and morbidity.

Lambert¹ in 1912 called attention to the formation of giant cells in lymphocytic cultures when lycopodium was used as an irritant. Papers on the subject of foreign body irritants were written by Harrison, Lambert, Haynes, Burroughs and others and summarized and published in 1913.² Erb³ reported six cases of lycopodium granuloma in 1935. Grieco⁴ reported the results of experiments with the use of lycopodium and talc in 1936. Fienberg⁵ reported two cases of granuloma caused by talc in 1937. Antopol and Robbins⁶ discussed granuloma caused by lycopodium following the use of rectal suppositories in 1937. Ramsey and Douglass⁷ discussed these reactions and reported five cases in a paper in 1940.

Lycopodium powder is produced from the spores of club moss, which belongs to the fern family. It is a fine yellowish substance used as a desiccant and absorbent with which all surgeons are familiar. This powder has also been used on pills and as a dusting powder on suppositories.

Talcum, or talc, is a native hydrous magnesium silicate. It is a white dusting powder. At times lycopodium is used in combination with talc to make a desirable powder which is easily sterilized and is used on the hands and gloves preceding operative procedures.

LESIONS PRODUCED

Lycopodium or talc or both are introduced into the tissue from the gloves of the surgeon or of his assistants. Inflammatory reaction of the granulomatous type

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16. Barnett, H. L.; Hartman, A. F.; Perley, A. M., and Ruhoff, M. B.: The Treatment of Pneumococcal Infections in Infants and Children with Sulfapyridine, *J. A. M. A.* **112**: 518 (Feb. 11) 1939.

17. Dolgopol, V. B., and Hobart, H. M.: Granulocytopenia in Sulfapyridine Therapy, *J. A. M. A.* **113**: 1012 (Sept. 19) 1939.

18. Thompson, L. D.; Edwards, J. C., and Hoagland, C. L.: Experiences in the Treatment of Lobar Pneumonia, *Ann. Int. Med.* **13**: 1138 (Jan.) 1940.

is produced. Granulomas vary in appearance. They may be nodular and show lymphocytic infiltration, fibroblasts and giant cells of foreign body types. In one of our cases we thought we were dealing with tuberculous peritonitis. Pathologically some of the lesions resemble



Fig. 1 (case 1).—Serosal thickening, fibroblastic proliferation, granulomatous inflammatory infiltrate and giant cells ($\times 70$).

tubercles and may show central caseation and necrosis. When tissues from this type of inflammatory reaction are examined microscopically, lycopodium spores and magnesium silicate crystals are found. Magnesium silicate was clearly demonstrable in the two cases that we report. The crystals are usually found within the large multinuclear giant cells, and that they are undoubtedly the etiologic factors seems beyond dispute. The importance of this condition can be realized from the synopsis of the following two cases:



Fig. 2 (case 1).—Typical type of granulomatous inflammation; one giant cell shows an arrangement of nuclei in the form of a crescent. The resemblance to tuberculosis is seen in this area ($\times 70$).

REPORT OF CASES

CASE 1.—A white woman aged 38, single, admitted to St. Vincent's Hospital Dec. 20, 1939, complained of abdominal cramps and pain which she attributed to spastic colon, a diagnosis previously made elsewhere. She had submitted to surgery in 1927, the gallbladder and appendix having been removed at

that time. For some time following the cholecystectomy and appendectomy she had abdominal distress which was diagnosed as spasticity of the colon. These attacks had ceased about three years before, although she had since had ribbon-shaped stools containing mucus on occasion.

For a week prior to admission the patient had cramps and pain in the abdomen accompanied by watery stools. Enemas in the meantime gave poor results. The cramps continued. There was no nausea or vomiting. The temperature was 101 F. the day prior to admission. She improved during the few days that she was in the hospital and was discharged December 24 with some abdominal tenderness but no diarrhea and no fever. The diagnosis on discharge was chronic pelvic inflammatory disease and grip.

The patient was readmitted to the hospital Jan. 5, 1940, with pain in the lower part of the abdomen and a palpable mass in the left tubo-ovarian region. There was a very definite cervicitis, and a preoperative diagnosis of cervicitis and left salpingo-oophoritis was made. Operative procedure was undertaken January 9. The cervix was dilated and tissue was obtained for biopsy. The cervix was cauterized. The abdomen was opened and the left tube was found greatly swollen and edematous, injected and bound down with the ovary to the posterior surface of the broad ligament. It was noted that the right



Fig. 3 (case 1).—Nodular serosal thickening, a giant cell showing an intracellular crystal at its lower margin ($\times 70$).

tube was somewhat injected but apparently normal and patent. There was a small cyst on the right ovary. There were adhesions in the upper part of the abdomen from the previous cholecystectomy and appendectomy.

The left tube and ovary were removed. The small cyst was resected from the right ovary. The round ligaments were plicated and the abdomen was closed in layers without drainage. The pathologic diagnosis was "chronic cervicitis with chronic erosion, partial healing and scar tissue formation; chronic active suppurative salpingitis; congestion, edema and cystic degeneration of the ovary with atretic follicle cysts, one showing intra-cystic hemorrhage."

January 22 the patient was up in a chair and feeling well. Discharge from the hospital was discussed with the patient at this time.

On January 26 the patient complained of pain in the lower part of the abdomen. The complaint of pain was accompanied by an elevation of temperature, which on January 27 reached 101.4 F. An irregular temperature curve was charted until January 31, when the temperature returned to normal and remained there. The patient was discharged from the hospital on February 12. At this time it was felt that she probably had salpingitis on the right side. Bimanual examination revealed some evidence of thickening and involvement of the right tube. She was discharged from the hospital and instructed to take douches and rest at home. It was felt that the inflammatory

condition in the right side might subside. Her course at home was not satisfactory and she was readmitted to St. Vincent's Hospital on February 20. At this time she was afebrile. She complained, however, of pain in the lower part of the abdomen, distention and persistent obstipation. Good results were not obtained with enemas.

Flat plates of the abdomen did not reveal evidence of small bowel obstruction. Examination of the abdomen showed definite tenderness in the right lower quadrant and bimanual examination revealed considerable thickening and the suggestion of a mass in the region of the right tube and ovary. Because of the colicky pain, nausea and distention of the lower part of the abdomen, a diagnosis of partial obstruction was made despite the negative flat plates and likewise a diagnosis of right salpingo-oophoritis. Transfusions and infusions of saline solution were given and everything was done to enhance the patient's general condition.

The abdomen was reopened on February 27. The tissues of the abdominal wall appeared edematous. The omentum was densely adherent to the peritoneal surface of the abdominal wall in the region of the previous incision. The uterus could be palpated on the left side of the pelvis. There was a large mass in the region of the right tube and ovary which appeared to be an inflammatory condition of the tube with cystic degen-

It at once becomes apparent that magnesium silicate as the offending agent caused this patient to have a secondary laparotomy, to lose the remaining tube and ovary and to become quite ill because of the extensive inflammation and partial intestinal obstruction. This

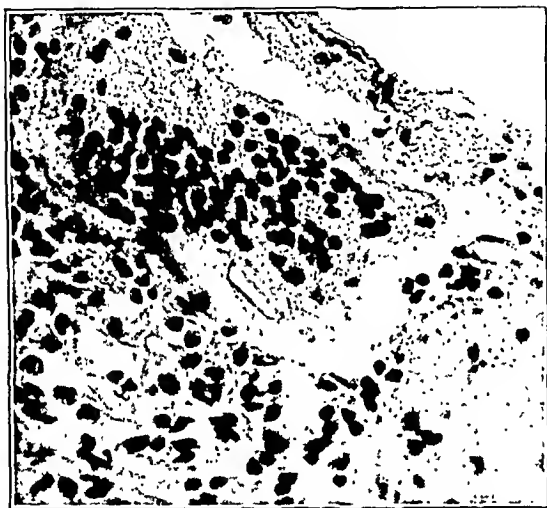


Fig. 4 (case 1).—Same as figure 3 but with a higher magnification ($\times 400$).

eration of the ovary. The small bowel was densely adherent to all surrounding structures and there seemed to be little question from the appearance of the bowel that we were dealing with a tuberculous peritonitis. Tubercle-like structures were seen all over the small bowel in this locality.

The right tube and ovary were freed and removed and many adhesions of the small bowel, which were apparently causing partial obstruction, were freed by sharp dissection. Some of the tubercle-like bodies were removed for examination. After freeing the bowel and closing the peritoneum, merthiolated solution of amniotic fluid of cows (amfetin) was introduced through a catheter in the hope of preventing further adhesions. The abdomen was closed without drainage. The department of pathology was requested to go over the previous specimen again as we felt that tuberculosis might have been the causative factor in the condition which necessitated the first laparotomy.

The tube and ovary, when grossly examined, showed many small clear vesicles on the serosal surface and there was definite cystic change in the ovary. Subsequent pathologic study of the tissues resulted in the following diagnosis: "Subacute salpingitis with hyperemia and edema and many nodules of foreign body granuloma from magnesium silicate. Hyperemia and edema of the ovary with granulomatous nodules on the serosal surface also caused by magnesium silicate. A few atretic follicle cysts are also present."



Fig. 5 (case 2).—Nodular serosal thickening with inflammatory infiltrate, hyperemic vessels and necrosis in the granulomatous area ($\times 70$).

condition would not have occurred had not magnesium silicate been introduced into the patient's peritoneal cavity. Fortunately, she has made a good recovery following the second operation and will soon return to her nursing duties.

CASE 2.—A white woman aged 21, admitted to St. Vincent's Hospital Dec. 15, 1939, complained of severe, lancinating, generalized abdominal pain. There were fever, anorexia and general malaise.



Fig. 6 (case 2).—Granulomatous nodules undergoing fibrosis, one area showing hyperemic vessel and a marginal giant cell ($\times 70$).

The patient had sharp pains in the abdomen radiating upward in the midline during the first day of her last menstrual period, December 10. Pain continued during the period and became more severe on December 14, at which time the pain was generalized. Vomiting had occurred at home. The patient described the pain in the lower part of the abdomen as similar to labor pains. She stated that her abdomen had been sore

to the touch and distended. Fever and profuse diaphoresis were noted before admission.

There was rigidity in the lower part of the abdomen and tenderness over the pelvic organs. Rebound tenderness was present. Vaginal examination revealed marked tenderness in the adnexal regions. Movement of the cervix caused her excruciating pain. No definite mass could be made out in the region of either tube or ovary. There was a purulent vaginal discharge, quite profuse. The white blood count ranged from 17,950 to 12,250 during the first two days in the hospital. Conservative treatment was employed with a fall in temperature and a disappearance of tenderness and improvement in the patient's general condition. She was discharged without operation on December 24 and sent home for continuation of treatment under the direction of the family physician. She was advised that operation might be necessary in the future.

The patient was readmitted to St. Vincent's Hospital Jan. 2, 1940, with a mass in the right side. There was no temperature and there were no contraindications to laparotomy. It was felt that further conservative treatment would be of no avail.

She was operated on January 3. The uterus, tubes and ovaries were found bound down in the pelvis by many adhesions. There were some adhesions of the small bowel.



Fig. 7 (case 2).—Typical granulomatous area with multiple multinuclear giant cells; several small magnesium silicate crystals are present but are indistinct in this photomicrograph ($\times 70$).

It was apparent that the right tube could not be saved. The right ovary appeared normal. The right tube, therefore, was removed and the right ovary was preserved. The adhesions about the left tube were freed and the tube was found to be patent in its entire length. The patient's age and her desire to bear children were taken into consideration and every effort was made to preserve tubal and ovarian tissue to the end that she might become a mother. The appendix was retrocecal and buried in its entire length. A routine appendectomy was done and the incision was closed without drainage. The cervical canal was dilated and treated with the actual cautery. The pathologic diagnosis was "subacute suppurative salpingitis; chronic interstitial inflammation with subacute activity in the appendix."

The patient was left, therefore, with the left tube and both ovaries. The postoperative course was uneventful and the patient was discharged on January 16 in good condition.

The patient was readmitted to the hospital on February 28. At this time she complained of pain in the left lower quadrant present for about four weeks. She stated that the menstrual flow had been profuse and vaginal bleeding seemed to be a prominent manifestation after discharge from the hospital. Tenderness and pain made their appearance in the lower part of the abdomen, particularly marked on the left side. Bimanual examination revealed a mass in the left tubo-ovarian region, and a tentative diagnosis of recurrent salpingitis and oophoritis was made.

The patient had fallen at home and had injured the left breast, and there was considerable bleeding from this wound. The loss of blood from the wound in the region of the breast and the loss of blood from the uterus combined to cause a secondary anemia. The patient's general condition was not exceptionally good.

The abdomen was reopened on March 1. The old median incision was rescoted and it was at once apparent that there had been considerable inflammation in the pelvis following the first operation. The left tube and ovary were bound down and there was adherent a section of the small intestine in this region. The right ovary appeared cystic. The adhesions in the area were freed and the left tube and ovary were freed and a supravaginal hysterectomy was done.

Subsequent pathologic examination of the uterus, right ovary, left tube and left ovary was reported as follows: "The section from the uterus shows fibrosclerosis, the blood vessels appear hyperemic, the mucosa shows small gland crypts and a rather dense cellular stroma. Two sections were taken from the tube and both areas show active inflammation, the tubal folds are almost completely destroyed, and the inflammatory infiltrate consists mostly of plasma cells and lymphocytes with a few eosinophils and polymorphonuclear leukocytes. Scattered through the tubal wall are areas of inflammatory cell infiltrate, many of these in and just beneath the serosa; these areas are particularly dense around the blood vessels. The serosa is roughened and several definite areas of granulomatous formation are present, some containing giant cells and crystals of magnesium silicate. Sections from the right ovary show a moderate degree of edema and hyperemia, a few atretic follicle cortical cysts were present and one retrogressing corpus luteum body. A section from the adherent and inflammatory omental tissue shows many granulomatous areas and fibrosclerosis. The granulomata show foreign body type giant cells many containing magnesium silicate crystals."

We feel that we are justified in the statement that magnesium silicate crystals were responsible for a serious postoperative complication in this case necessitating a second operation and loss of the generative organs of a young woman in the child bearing period. She has made an uncomplicated recovery and is now symptom free.

COMMENT

It should be remembered that magnesium silicate or talc is used extensively in operating rooms, in dressing rooms and also in the laboratory if rubber gloves are used dry. These crystals, therefore, may contaminate solutions, instruments and glassware and also dressings, so that they may be found on almost anything if examined microscopically. This is important in consideration of pathologic lesions as seen under the microscope, for crystals may be found while tissues are being examined under the microscope which have no part in the pathologic condition.

In order to connect these crystals with the pathologic condition they must be found in granulomatous areas and some will be found in the typical foreign body type giant cells that are always present in some parts of the lesions. We have found that slides prepared with albumin fixative and allowed to dry in the open air in the laboratory are particularly prone to have dust particles and often magnesium silicate crystals settle on and adhere to their surfaces; also, while areas are being selected for embedding and sectioning, the handling of the tissues with rubber gloves on which powdered talc is present may contaminate the tissue and be found in and on the sections. These words of warning are herein expressed so that no misleading observations will be reported and to avoid incriminating a few crystals in or on sections as an etiologic factor.

If rubber gloves are used in surgery, an excess of powder must be avoided; thorough washing of the

gloved hands will remove most of the powdered talc. The atmosphere of the operating room must be kept as free as possible of this powder so that possible foreign body lesions will not be produced by contamination of the operative area.

Often the finding of these crystals in the lesions is not easy, but careful examination with dim lighting will reveal these irregular shaped refractile bodies. Their presence in the giant cells is conclusive evidence that they are the offending factor.

SUMMARY

It is evident that in each of the two cases of granulomatous inflammation here reported the unsatisfactory postoperative condition was caused by magnesium silicate crystals and second laparotomies were made necessary. The thought must come to mind, as one considers these cases, that it is probable that many postoperative complications caused by magnesium silicate or lyco-podium have gone undiagnosed. This may be especially true of postoperative intestinal obstruction.

The excessive and indiscriminate use of powder on the gloves and hands of the surgeon should receive serious consideration, as there is little doubt that these substances can and do cause serious complications. It should likewise be borne in mind that the use of rectal and vaginal suppositories covered with powder are not without danger, as nonhealing granulomatous lesions may occur following their use in the vagina and in the rectum.

Ohio Building.

CONGENITAL SHORT ESOPHAGUS WITH THORACIC STOMACH AND ESOPH- AGEAL HIATUS HERNIAS

REPORT OF FORTY-SEVEN CASES

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Herniation of the stomach into the thorax by way of the esophageal hiatus is encountered with increasing frequency as efforts to diagnose or suspect it clinically are intensified by more relevant information regarding the condition. Various authors have attempted to define typical symptoms or symptom complexes since Bailey¹ in 1919 wrote of the thoracic stomach which was associated with a congenital short esophagus. We are now familiar with another similar but more common entity in which the esophagus is of normal length, best referred to as esophageal hiatus hernia. The present report presents a survey of forty-seven cases taken from the St. Luke's Hospital records in an attempt to analyze further clinically the symptom relationship. There were fourteen in which there was a congenital short esophagus with partial or complete thoracic stomach; thirty-three presented an esophageal hiatus hernia with varying degrees of stomach herniation. All presented positive roentgenographic, esophagoscopy or surgical confirmation of the diagnosis.

In the literature various classifications are proposed for esophageal hiatus hernias, among them embryology, etiology, trauma and nontrauma. Åkerlund² divides them into three types: (1) congenital short esophagus with partial or complete thoracic stomach, (2) esoph-

ageal hiatus hernia with an esophagus of normal length which does not form a part of the hernia (i.e. para-esophageal hernia) and (3) esophageal hiatus hernia in which the esophagus is shortened and the distal portion forms a part of the hernial contents. The important differentiation from the therapeutic point of view will be mentioned later. The term "para-esophageal hernia" used by Eppinger³ also defines an esophagus of normal length fixed below the diaphragm with the cardia of the stomach passing upward closely adjacent to it. "Partial thoracic stomach" describes the stomach in association with a congenital short esophagus. Often it is difficult to distinguish accurately one type of hernia from another, even with the aid of laboratory procedures.⁴

ETIOLOGY

Anatomically the types differ. A congenital short esophagus with thoracic stomach is regarded as the result of incomplete embryologic development in which the stomach never has been below the diaphragm, usually has no enclosing hernial sac and is not a true herniation of a once normally placed organ. In esophageal hiatus hernias the herniated stomach constitutes a true hernia with a serous sac and the esophagus also extends below the diaphragm and may or may not extend back into the hiatus. Moersch⁴ considers even this type of congenital origin, as are inguinal hernias, relaxation of the potentially weak rings induced by factors which increase intra-abdominal pressure, such as severe physical strain or exertion, pregnancy or vomiting. The two produce similar symptoms and diagnostic problems. Perhaps the main reason for differentiating the types concerns surgical therapy, because the congenital short esophagus type is not so amenable to the usual surgical methods of replacing the stomach into the abdominal cavity as the esophageal hiatus hernia in which the esophagus is of normal length.

The esophageal hiatus hernia, seen from childhood⁵ to senility,⁶ is more frequent in older persons. Age, therefore, is suggested as a contributing factor to its presence, because increasing age causes degenerative tissue changes with lack of muscular control of all muscle structures of the body. Other factors set forth by Åkerlund² include (1) stretching of the hiatus due to the insufficiency of surrounding muscle fibers, (2) decrease in the amount of fat tissue in the esophageal ring, (3) decrease in elasticity of the elastic fibrous tissue about the hiatus, (4) loosening of connective tissue between the esophagus and peritoneum and (5) the already mentioned increase in intra-abdominal tension.

These hernias occur equally in the two sexes and more frequently in patients past the fourth decade of life. The ages in this report range from 28 to 80 years, the average being 58.8 years. Twenty-five patients were women, twenty-two were men. The average age of the women was 59.7 years and of the men 58.8 years. More than half of the patients were between 51 and 70 years of age and nearly 90 per cent were more than 40 years (table 1).

3. Eppinger, H.: Allgemeine und spezielle Pathologie des Zwerchfells, Vienna and Leipzig, A. Helder, 1911.

4. Moersch, H. J.: Hiatal Hernia, Ann. Otol., Rhin. & Laryng. **47**: 754 (Sept.) 1938.

5. Clerf, L. H., and Manges, W. F.: The Congenitally Short Esophagus, J. A. M. A. **102**: 2098 (June 16) 1934. Lindley, Leonard, and Kelly, Brown: Congenital Shortening of the Esophagus and Thoracic Stomach Resulting Therefrom, J. Laryng. & Otol. **46**: 797-816 (Dec.) 1931. Clerf and Manges.²

6. Harrington, S. W.: Diaphragmatic Hernia: Results of Surgical Treatment in 210 Cases, California & West. Med. **50**: 392-401 (June), **51**: 27-31 (July) 1939.

From the Department of Medicine, St. Luke's Hospital, Chicago.

1. Bailey, P.: A Case of Thoracic Stomach, Anat. Rec. **17**: 107 (Oct.) 1919.

2. Åkerlund, Åke: Die Anatomische Grundlage des Röntgenbildes der sogen. "erworbenen Hiatus-brüche," Acta. Radiol. **14**: 523-544, 1933.

Obesity, thought to be another definite factor in the etiology of hiatal hernias, is mentioned by only a few authors.⁷ In this series, excess weight was a prominent factor. Of thirty-nine patients whose weight records were obtainable eleven, or 28.2 per cent, were 20 pounds (9 Kg.) or more overweight as determined by age, height and weight actuarial statistics whenever applicable, or by estimation based on the height and weight of the patients as determined by physical examination. Six patients, or 15.3 per cent, were 15 pounds (6.8 Kg.) overweight; nine, or 23 per cent, were moderately so (10 pounds, or 4.5 Kg.), and thirteen, or 33.3 per cent, were not significantly beyond the usual limits of normal or were classed as underweight (table 2).

The influence of obesity is said to be affected by (1) increasing intra-abdominal pressure which forces the cardia of the stomach through the nearby point of weakness, the esophageal hiatus⁸ and (2) changes in the cell structure due to fat deposit in the tissues adjacent to the hiatus.⁹ Obese patients may be much relieved of their symptoms on a weight reduction regimen. This often obviates the need of surgical treatments.

COINCIDENCE OF COLON DIVERTICULA

An interesting observation not previously noted in the literature on hiatus hernias concerns the incidence of diverticula elsewhere in the body of patients who

TABLE 1.—Age and Sex Distribution

Age in Years	Male	Female	Percentage of Total Cases
28-30 .....	..	2	4.25
31-40	2	1	6.38
41-50	5	2	14.89
51-60	4	9	27.65
61-70	10	6	34.04
71-80	1	5	12.76
Total... ..	22	25	99.97

have hernias through the esophageal hiatus. Thirty-three patients had a complete roentgenologic examination of the gastrointestinal tract. Of these sixteen, or 48.4 per cent, had diverticula of the colon, usually of the sigmoid region, and eighteen, or 54.5 per cent, had diverticula of the colon or other sections of the gastrointestinal tract. Of six with diverticula in more than one region of the gastrointestinal tract, three were in the duodenum and colon. Rankin,¹⁰ who summarized the numerous reports of the literature on this subject, estimated the incidence of diverticula of the colon among patients more than 40 years of age at approximately 5 per cent. The incidence increases with age. The records of 422 consecutive routine complete gastrointestinal roentgenologic examinations in 1939 in patients over 40 years of age who were examined because of various symptoms of the entire gastrointestinal tract revealed an average age of 54.09 years. Only those over 40 years of age were included in the control group so as to correspond more closely to the age of the great majority of patients with hiatal hernias; their average age in this series was 58.8 years. The incidence of diverticula of the large bowel in this control group was 32.9 per cent. The 48.4 per cent

incidence of colon diverticula in patients with esophageal hiatus hernias is almost a 50 per cent increase over that of the control group.

SYMPTOMS

The symptomatology of hiatus hernia varies, depending on factors such as the progress of the disease when the patient is examined, the duration and rapidity of onset of symptoms⁶ and the degree of stomach incar-

TABLE 2.—Summary of Data

	Congenital Short Esophagus with Thoracic Stomach	Esophageal Hiatus Hernia of the Stomach
Number of cases.....	14	33
Degree of herniation		
Small.....	10	22
Medium.....	3	5
Large.....	..	2
Complete.....	1 (Negro)	..
Not specified.....	..	4
Age		
Range.....	37-75 years	28-80 years
Average.....	60.3 years	57.5 years
Sex		
Female.....	7 (1 Negro)	19
Male.....	7	14
Obesity		
20 pounds overweight.....	3	8
15 pounds overweight.....	0	6
10 pounds overweight.....	3	6
Not overweight.....	7	6
Questionable.....	1	7
Diverticula		
Esophagus.....	1	1
Duodenum.....	..	5
Jejunum.....	..	2
Cecum.....	1	..
Colon.....	5	11
No diverticula.....	4	9
Bowel not examined.....	4	11
Symptom classification		
Gastrointestinal.....	10	20
Cardiorespiratory.....	1	..
Mixed.....	2	11
None.....	1	2
Average duration of symptoms	(9 cases) 13 years	(25 cases) 5.9 years
Previous diagnosis.....	(7 cases) heart disease 4; cholecystitis 2; peptic ulcer; cancer of stomach; bronchitis	(14 cases) heart disease 4; obesity; gallbladder disease; cancer of stomach; duodenal ulcer; "hyperacidity"; pylorospasm; spastic colon; anemia; paresis; pertussis
Coincident pathologic changes..	(9 cases) gallbladder 3; pylorospasm 2; spastic colon 2; diabetes; duodenal ulcer; rectal polyp; inguinal hernia; syphilis; hypertension	(26 cases) spastic colon 3; gallbladder 4; esophageal ulcer 4; gastric ulcer 3; heart disease 3; inguinal hernia 3; neurasthenia 3; duodenal ulcer 2; arthritis 2; anemia; tabes; diabetes; cardiospasm; pernicious anemia; alcoholism; morbidism; umbilical hernia; obstruction in small intestine; asthma; varicose veins; pregnancy, 7 mos.

ceration and associated spasm of the diaphragm and esophagus.⁴ Most patients who present themselves for diagnosis or treatment of this condition have had symptoms a long time. The average duration of symptoms in the cases of this series was seven and three-fourths years (table 3).

For purposes of analysis, the symptoms may be classified into several groups after the plans of Cowan¹¹ and others:

Group 1, upper gastrointestinal symptoms, thirty patients.

11. Cowan, I. I.: Diaphragmatic Hiatus Hernia, *Am. J. Roentgenol.* 37:333 (March) 1937.

7. Marks,⁹ Moersch.⁴
8. Harrington, S. W., and Kirklin, B. R.: The Clinical and Roentgenologic Manifestations and Surgical Treatment of Diaphragmatic Hernia, with a Review of 131 Cases, *Radiology* 30: 147-156 (Feb.) 1938.
9. Marks, J. H.: Diaphragmatic Hernia and Associated Conditions, *Am. J. Roentgenol.* 37: 613 (May) 1937.
10. Rankin, F. W.; Bagen, J. A., and Buie, L. A.: The Colon, Rectum and Anus, Philadelphia, W. B. Saunders Company, 1934, pp. 138-140.

Group 2, symptoms simulating cardiorespiratory abnormalities, one patient.

Group 3, mixed symptom group, which includes the epiphrenal or von Bergmann syndrome, a gastrocardiac symptom complex due to irritation of the nerve endings in the esophageal hiatus with reflex manifestations of precordial pain through the sympathetic nervous system,¹² thirteen patients. This characteristic variation in the symptoms of hiatal hernia is discussed also by the Jacksons¹³ and by Cowan.¹¹

Group 4, asymptomatic group, three patients. A few in the first three groups may seem to some readers to belong to the group presenting no symptoms actually attributable to the herniation. This cannot be settled definitely at the present time. In Cowan's series, 7 per cent were asymptomatic; in the group collected at the Mayo Clinic, 7.7 per cent.⁴ The three cases in the present report constitute a 6.3 per cent incidence.

Different authors seem to have a predominance of one or the other symptom groups in their series and future analyses of all reports will be needed to evaluate accurately these smaller group studies in the light of the total.

GROUP 1.—The most persistent complaint of all patients (table 4) with hiatal hernias is pain or distress during or soon after eating¹⁴ and usually is localized in the epigastrium or substernal areas but occasionally in the right upper quadrant of the abdomen. There is often projection through to the back or to the left shoulder. The pain varies from a feeling of discomfort and fullness to a gnawing or burning, or to severe, sharp, colic-like pain, probably depending on the degree of stomach incarceration⁴ and the action of the acid contents on the esophageal mucosa.¹⁵ The distress or pain is associated with belching, heartburn and bloating. The pain may occur at night or when the patient lies in the supine position, a characteristic symptom when present. The aggravation of symptoms by lifting heavy objects, stooping or a sudden shift in body position rarely was encountered. These symptoms, when present, help make the presence of an esophageal hiatus hernia recognizable.

Nausea with or without vomiting, and regurgitation, especially following large meals, are common complaints. Regurgitation usually occurs immediately after meals or at night and often results in symptomatic relief, as does belching and emesis, at times self induced.

Several patients used alkalis and milk with varying degrees of relief, probably dependent on the extent of mucosal ulceration in the esophagus or herniated stomach. The use of alkalis, however, may cause the symptoms to be misinterpreted for those of peptic ulcer.⁴

Dysphagia, especially for solid foods, occurs in from 15 to 20 per cent of the cases.¹⁶ It is thought to be more common in cases presenting congenital short esophagus with thoracic stomach but does occur in the other types of hiatal hernias and when there is constriction of the hiatal ring.¹¹ Dysphagia may be overcome by belching or emesis⁴ or by the prone position.⁵

Gastric hemorrhage was present in four cases. Except for these, anemia rarely was encountered.

GROUP 3.—The age range of patients having esophageal hiatus hernias and other coincidental pathologic changes render it difficult at times to interpret accurately the symptoms in mixed symptom groups. Of the thirteen patients in this group, ten presented a combination of cardiorespiratory and gastrointestinal symptoms; eight had dyspnea of varying degrees as the main complaint, associated with palpitation in five cases; eight had precordial pain or fullness and two had constricting sensations with the chest pain. One had pain which radiated into the neck and down the left arm; another had radiation down the right arm to the finger tips, so that in many of this type a presumptive diagnosis of angina pectoris or organic heart disease is made. The analogy of complaints with the symptoms of angina pectoris is noted and discussed by Truesdale,¹⁷ who states that the differentiation from actual anginal attacks of coronary disease may be aided by the atypical radiation of pain to the back, its occurrence without relation to effort, and the limited degree of heart disease. Two patients had radiation of chest pain to the left shoulder; in one of these it was at times related to food intake.

Nonproductive cough was more than an incidental finding in four instances. The cough precipitated the

TABLE 3.—Duration of Symptoms

Duration	Number of Cases
Less than 1 year.....	0
1-5 years.....	0
6-10 years.....	12
11-15 years.....	3
16-20 years.....	2
21-25 years.....	1
More than 25 years.....	1
Average, 7½ years	
Total.....	31

epigastric symptoms in one case. Another patient had a "stomach cough" with heartburn after meals, as well as a chest cough.

In this group, all had epigastric pain, frequently accompanied by nausea and vomiting and regurgitation, though most patients presented themselves primarily because of cardiorespiratory symptoms.

One patient (group 2) had only cardiorespiratory symptoms characteristic of angina pectoris and associated with occasional belching. Vague symptoms of dyspnea, palpitation and fatigue with electrocardiographic evidence of a 4:1 heart block and auricular flutter known to be present for two years were present in another case better placed in the asymptomatic group 4. Two other cases are placed in this group. Less emphasis is being placed on the symptom-free group, though some authors have stated that "a clinical diagnosis or even a surmise of a diaphragmatic hernia is scarcely to be expected."¹⁸ This opinion has been shared also by Hedblom,¹⁹ Morrison and his co-workers²⁰ and Ritvo.²¹

12. von Bergmann, G.: Das "Epiphrenale Syndrom," seine Beziehung zur Angina Pectoris und zum Kardiospasmus, Deutsche med. Wchnschr. 58: 605-609 (April 15) 1932.

13. Jackson, D. E., and Jackson, Helen: Experimental and Clinical Observations Regarding Angina Pectoris and Some Related Symptoms, J. Lab. & Clin. Med. 21: 993-1006 (July) 1936.

14. Giffin, H. Z.: Diagnosis of Diaphragmatic Hernia, Ann. Surg. 55: 388-399 (March) 1912. Harrington.⁵ Moersch.⁴ Morrison, Morrison and Delaney.²

15. Glatt, M. A.: Congenital Short Esophagus with Partial Thoracic Stomach, Arch. Otolaryng. 24: 612-617 (Nov.) 1936.

16. Monkhouse, J. P., and Montgomery, S. K.: Seven Cases of Congenital Short Esophagus with Partial Thoracic Stomach, J. Laryng. & Otol. 48: 743-753 (Nov.) 1933. Cowan.¹¹ Moersch.⁴

17. Truesdale, P. E.: Diaphragmatic Hernia at the Esophageal Hiatus, the Short Esophagus and Thoracic Stomach, New England J. Med. 212: 240-250 (Feb. 7) 1935.

18. Moore, A. B., and Kirklin, B. R.: Progress in the Roentgenologic Diagnosis of Diaphragmatic Hernia, J. A. M. A. 95: 1966-1969 (Dec. 27) 1930.

19. Hedblom, C. A.: Diaphragmatic Hernia, Ann. Int. Med. 8: 156-176 (Aug.) 1934.

20. Morrison, L. B.; Morrison, S. L., and Delaney, J. H.: Herniation of the Fundus of the Stomach Through the Esophageal Hiatus: with Special Reference to Its Roentgenologic Diagnosis, New England J. Med. 210: 624-633 (March 22) 1934.

21. Ritvo, Max: Hernia of the Stomach Through the Esophageal Orifice of the Diaphragm, J. A. M. A. 94: 15-21 (Jan. 4) 1933.

No relationship between the severity of symptoms and the length of the esophagus or size of the hernia could be demonstrated. Often the severity of the symptoms exceeds the degree of herniation¹⁷ and seemingly depends on the degree of mucosal ulceration. Bloch²² suggests that symptoms of long duration indicate the presence of a congenital short esophagus with the thoracic type of stomach.

DIAGNOSIS

Accurate diagnosis of hiatus hernia is important because of complications which may arise (1) by confusion with other organic diseases of the abdomen and thorax and (2) by permitting the herniation to progress without treatment. Coexisting pathologic conditions often make evaluation of the symptoms difficult. Gallbladder disease, peptic ulcer, heart disease, malignant conditions of the cardia or esophageal and intestinal

TABLE 4.—Incidence of Symptoms

Herniation	Congenital Short Esophagus with Thoracic Stomach			Esophageal Hiatus Hernia of the Stomach				Totals
	Small	Medi-um	Com-plete	Small	Medi-um	Large	Not Specified	
Epigastric pain after eating....	8	2	1	19	5	1	3	39
Nausea and vomiting	3	1	..	11	3	1	3	22
Belching.....	4	2	..	(blood 3)	2	(blood)	2	21
Pyrosis.....	3	1	1	4	2	..	2	15
Regurgitation....	3	1	1	7	1	..	1	14
Night pain.....	4	..	..	5	2	..	..	11
Dysphagia.....	1	..	1	6	..	..	..	8
Dyspnea.....	1	..	..	4	..	1	..	6
Chest pain.....	1	1	..	5	..	..	..	7
Cough.....	2	..	..	2	..	..	..	4
Palpitation.....	..	..	..	4	..	1	..	5
Anginal pain....	2 (both arms, especially left, without effort 1) (left arm 1)			3 (both arms 1) (left arm 1) (right arm 1)				5
Aggravation of symptoms by....	Greasy and fried foods 3; large meals 2; supine position 2; lying on left side; tobacco; orange			Greasy and fried foods 3; large meal 2; lifting; bending suddenly; fatigue; lying on left side; supine position; meats; tomato; apple; beans; evening meal				
Relief of symptoms by.....	Alkalis 3; belching 2; food; emesis; upright position; colonic irrigation			Alkalis 9; emesis 7; food 3; belching 3; regurgitation 2; small meals 2; upright position; dry foods; gastric lavage; cold to abdomen				

obstructions may present symptoms not unlike those of hiatus hernia. Unnecessary surgical intervention because hiatus hernia was not ruled out in the differential diagnosis is reported.⁶

Since a symptom complex cannot be definitely established for the diagnosis of hiatus hernia, it is important that this entity be searched for constantly and kept in mind whenever the differential diagnosis of thoracic, cardiac or abdominal conditions, especially those of more serious portent, presents itself.

In every case, clinical suspicion of this entity must be confirmed by laboratory procedures, especially the roentgenologic study. Briefly, the technic of the x-ray search for hiatus hernias consists in routine fluoroscopy, and the examination of all patients in either the horizontal or the Trendelenburg position or both, with ingestion of the opaque meal while in these positions. In many instances, especially with small hernias and no adhesions, the lesion may be demonstrable only by

this procedure when a portion of the full stomach protrudes through the esophageal hiatus when the opaque meal is being swallowed or during inspiration. The x-ray diagnosis of the congenital short esophagus is made as follows: (1) A portion of the cardia, as evidenced by longitudinal rugae markings, must be shown to stay above the level of the diaphragm and (2) the esophagus must be shown to be too short to reach as low as the level of the diaphragm, with no change by postural variations. Often there is a narrowing at the esophagogastric junction, and the cardia above the diaphragm may fill only after the rest of the stomach has been filled or when the patient is in the right oblique or prone position, which places the hiatus higher than the upper end of the esophagus.²³

The use of esophagoscopy in the diagnosis of these entities is advocated as a routine procedure in all suspected cases, especially when surgery is contemplated.²⁴ Esophagoscopy is of value in studying the conditions of the esophagus, especially ulceration, in determining the presence of pathologic changes in the lower end of the esophagus, in measuring the length accurately and in obtaining mucosal biopsy of suspected gastric tissue when indicated. In a congenitally short esophagus a narrowing at the esophagogastric junction is found with the dilated portion below this level lined with gastric mucosa and no evidence of a normal diaphragmatic hiatus. The esophagus in the esophageal hiatus hernia is usually more redundant with less pronounced narrowing at the esophagogastric junction.⁴

Roentgenologic examination being simpler and less objectionable to the patient than esophagoscopy, it would seem that the latter could be restricted to persons presenting inconclusive x-ray evidence.

TREATMENT

The treatment of hiatus hernia varies with the type of hernia, the age of the patient, the presence of complications and the severity of symptoms. Esophageal bouginage is beneficial in the treatment of the narrowing at the esophagogastric junction in the congenital short esophagus with partial thoracic stomach, especially in children. If no relief is obtained, Harrington⁶ advises surgical exploration, as it is sometimes possible even in these cases to replace the stomach in the abdominal cavity with subsequent relief of symptoms. The reader is referred to the articles by Harrington on the technic of the surgical treatments of hiatus hernias.

Before surgery is recommended, it is advisable that most patients with hiatal hernias be given a period of conservative management. This is especially true of obese patients who present themselves for surgery, but many of whom need no radical surgical procedures after medical management.

Besides the reduction of excess weight, the essentials of medical treatment include a diet schedule of smaller meals at more frequent intervals, so that the patient eats four, perhaps five, meals a day. The diet should be nonirritating and exclude foods with a tendency to gas formation causing greater stomach distention. The largest meal should be at noon, with a light, rather dry diet in the evening to decrease the tendency for pain at night and for regurgitation. Thorough mastication of the food is important. Smaller meals do not

22. Bloch, Leon; Serby, A. M., Salinger, Samuel: Thoracic Stomach with Short Esophagus, *Am. J. Digest. Dis. & Nutrition* 3: 689 (Nov.) 1936.

23. Clerf, L. H., and Manges, W. F.: Congenital Anomalies of the Esophagus with Special Reference to the Congenital Short Esophagus with a Portion of the Stomach Above the Diaphragm, *Ann. Otol. & Laryng.* 42: 1058 (Dec.) 1933.

24. Clerf and Manges.² Findlay and Kelly.² Glatt.¹³ Harrington.⁶ Moersch.⁴

distend the stomach so greatly and presumably permit peristalsis below the diaphragm without restriction or compression, whereas peristaltic activity in a distended stomach may act to force the constriction of a portion of the cardia through the enlarged or weakened hiatal ring. Decrease in bulk facilitates the relief of other symptoms of the upper gastrointestinal tract and allows the previously injured mucosa to repair itself.

The patient is instructed not to lie down for several hours after a meal; this also aids in overcoming the regurgitation. A restriction of exercise sometimes is indicated. Wood chopping, horseback riding, golf and other activities requiring frequent stooping or bending of the trunk of the body so as to increase intra-abdominal tension are harmful.

Patients with symptoms of ulceration of the esophageal mucosa or herniated gastric mucosa are usually adequately managed with peptic ulcer therapy, alkalis and antispasmodics. Calcium carbonate in from 10 to 20 grain (0.65 to 1.3 Gm.) doses is preferred to sodium bicarbonate because its lesser solubility may cause less rapid formation of gas in the stomach with less resultant distention.

Advanced age and the presence of serious coincidental pathologic changes are frequent contraindications to surgical repair of hiatus hernias. These patients may benefit from a planned medical regimen. When no symptoms are referable to the hernia and the hernia is not large enough to interfere with vital body functions, treatment is not necessary.

SUMMARY

1. In a series of forty-seven patients with nontraumatic esophageal hiatus hernia, congenital short esophagus with partial or complete thoracic stomach was present in fourteen. The average age was 58.8 years, almost 90 per cent of the patients being more than 40. Predominance of one sex over the other was not noted.

2. All the cases were considered as actually or essentially congenital. Age and obesity are thought to be contributing factors in the presence of a congenital potentiality for herniation through the esophageal hiatus.

3. There was a high incidence, 48.4 per cent of this series, of coexisting diverticula of the large bowel; this is a previously unreported observation.

4. The most common symptom was epigastric pain or distress after eating (83 per cent), associated with bloating and belching (44.7 per cent), and heartburn (31.9 per cent). Nausea and vomiting (47 per cent) and regurgitation (30 per cent) are frequent complaints. Other characteristics, less often encountered, included night pain (23.4 per cent), dysphagia (17 per cent), dyspnea (12.7 per cent), chest pain (14.9 per cent), gastric hemorrhage (8.5 per cent), anginal pain and cough.

5. No relationship between the severity of symptoms and the type or size of hiatus hernia could be demonstrated.

6. It is exceedingly important that hiatus hernia be ruled out in all suspicious or atypical cases because of the greater seriousness of other diseases of the thorax, heart and upper part of the abdomen.

7. The clinical evidence should be substantiated by roentgenoscopy and by esophagoscopy if x-ray evidence is inconclusive or if surgery is contemplated.

8. The essentials of medical treatment include weight reduction, dietary regulation, use of antispasmodics and peptic ulcer management when indicated, and selective restriction of physical activity.

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ISOIMMUNIZATION IN PREGNANCY

ITS POSSIBLE BEARING ON THE ETIOLOGY OF ERYTHROBLASTOSIS FOETALIS

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A number of transfusion accidents in pregnancy have been reported in the literature, even though the donor, frequently the husband, was in the same blood group as the patient.¹ In one instance analyzed by Levine and Stetson² it was assumed that the accident could be attributed to an agglutinin resulting from immunization of the mother by factors in the fetus inherited from the father.

Analysis of a series of 12 cases in which atypical agglutinins could be demonstrated revealed the significant fact that these patients presented obstetric histories characterized by a number of complications such as toxemia, macerated fetus, repeated abortions, miscarriages or stillbirths.³

Recently 5 additional patients with atypical agglutinins were observed, 3 of whom gave birth to infants suffering from erythroblastosis foetalis. The obstetric histories of these cases are so striking as to merit brief mention.

One patient, J. L. (decigravida, sextipara), now pregnant and under observation, had three spontaneous abortions and six full term pregnancies with living babies, five of whom survived only one to three days. In at least three of these five babies there is clinical or pathologic evidence to support a diagnosis of erythroblastosis foetalis. The blood of this patient was studied for agglutinins because of the remarkable history of repeated abortions and neonatal deaths.^{5a}

Another patient, R. C. (group O), had three pregnancies, the first and third of which resulted in neonatal deaths with postmortem evidence of erythroblastosis. The third infant showed pronounced anemia, and blood smears revealed a large number of peripheral normoblasts. During the second pregnancy the fetus died in utero at eight and one-half months. This patient was called to our attention because of anuria following a transfusion of her husband's blood, which was also in group O. It is of interest that atypical agglutinins in

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Drs. Ralph L. Barrett, Ralph A. Hurd, John N. Pannullo, Donald Z. Rhoads and Greta Stohr cooperated in supplying histories and specimens in several cases. Drs. William Antopol and Lester Goldman were consulted with regard to pathologic and hematologic aspects.

1. Levine, Philip, and Polayes, S. H.: *Ann. Int. Med.*, to be published. Wiener, A. S., and Peters, H. R., *ibid.* 13: 230, 1949. Levine and Stetson.²

2. Levine, Philip, and Stetson, R. E.: Unusual Case of Intra-Group Agglutination. *J. A. M. A.* 113: 126 (July 8) 1939.

3. Levine, Philip, and Katzin, E. M.: *Proc. Soc. Exper. Biol. & Med.* 45: 343, 1940.

5a. This patient has since delivered, and the infant exhibited classic symptoms of erythroblastosis foetalis.

this case could not be demonstrated in the specimen drawn the day after the transfusion. This was to be expected, since the donor's blood, still present in the patient's circulation,⁴ had specifically absorbed the atypical agglutinin, which reappeared in the serum several days later.

The blood of a third patient, E. F. W. (group O), was sent to us because the infant suffered from erythroblastosis foetalis as evidenced by the clinical condition and the characteristic blood picture. The blood of the mother, drawn two days after a transfusion with her husband's blood (group O), did not contain any atypical agglutinins because in this instance also it could be shown that the blood of the donor (her husband) was still present in her circulation. The serum of this specimen was distinctly icteric. However, a specimen drawn six days after the transfusion contained atypical agglutinins active on the cells of her husband and other donors of group O. That the patient did suffer from a transfusion reaction was evidenced by jaundice, oliguria and nitrogen retention.

The past obstetric history of this patient (E. F. W.) reveals one spontaneous abortion followed by birth of a normal living infant. During this pregnancy the patient was distinctly toxic, as evidenced by rise in blood pressure, albuminuria and edema.

Of the remaining two patients in whom atypical agglutinins were found, one patient (L. L., primipara,

and A. This patient died of transfusion anuria on the ninth day.

Patient J. B. (primipara, secundigravida) had a full term hydrocephalic macerated fetus in her first pregnancy. In the second pregnancy, the fetus died in the sixth month. A decidedly edematous fetus dead about six days was delivered spontaneously; the placenta was edematous and two to three times the normal size. Sections of the liver showed striking evidence of extramedullary hemopoiesis. The patient was given a transfusion the day before delivery with presumably compatible blood. The blood of this patient was examined only on the fourth day after the transfusion and five days prior to her death. No agglutinins could be demonstrated, probably because of specific absorption by the donor's blood, as indicated.

Serologic tests for syphilis in these cases were negative.

It is probable that there is a connection between the occurrence of these complications and the presence of immune agglutinins in the mother. This relationship lends itself readily to form a theoretical basis for the etiology of at least some cases of erythroblastosis foetalis. "This condition occurs late in uterine life, although its manifestation may not appear until shortly after birth. A striking familial incidence is found in many cases."⁵ The hypothesis of isoimmunization can readily explain the familial incidence of this condition.

The blood picture characteristic of erythroblastosis foetalis, i. e. destruction of red cells and compensatory reaction of the bone marrow, can also be explained in terms of the isoimmunization theory. One may assume that the agglutinins in the mother's circulation under certain conditions are capable of penetrating the placental barrier so that these antibodies, by their continual action on the blood cells and perhaps tissue cells of the fetus, induce erythroblastosis foetalis and its several manifestations. In the presence of a sufficient concentration of agglutinins the fetus may die in utero.

A similar explanation may also hold for some stillbirths, miscarriages and abortions—at least as far as the cases presented are concerned.

The question of the specificity of the agglutinins involved will be discussed in further publications, but there is sufficient evidence to indicate that most of these serums contain an agglutinin which parallels the anti-Rh agglutinin of Landsteiner and Wiener.⁶ Rh is an antigen present in the red blood cells of *Macacus rhesus* monkeys and in about 85 per cent of human beings.

SELECTION OF COMPATIBLE DONORS IN THE CASES DESCRIBED

Obviously, blood grouping tests with potent anti-A and anti-B serums followed by a cross matching must be performed with great care. It is safer to look for compatible donors among the patient's blood relatives than to use the husband. Preferably, transfusions should not be performed if the patient is under an anesthetic. In view of the fact that the blood of many of the patients studied does not contain the Rh antigen, a list of Rh negative donors should be available. It is hoped that methods will soon be found for the preparation of potent immune anti-Rh serums in rabbits or other animals.

Outcome of Thirty-Six Pregnancies in Seven Patients

Normal babies	10	
Babies with erythroblastosis.....	6	
Neonatal deaths	3	
Stillbirths	5	
Abortions or miscarriages.....	10	(at least 6 spontaneous)
No data available.....	2	

quadrigravida) had two miscarriages and a premature baby who survived only four days. The presence of atypical agglutinins in this case, observed after the fourth pregnancy, was not associated with any complications in either mother or baby.

The fifth patient (F. Z., octipara, undecigravida) had two miscarriages. Unfortunately the details of the past obstetric histories are not available. The eleventh pregnancy was characterized by placenta praevia, for which condition a cesarean section was performed and a macerated male fetus was delivered. The patient was given a transfusion the day of the operation but developed jaundice and anuria, which terminated fatally twelve days later. Atypical agglutinins were demonstrated in a blood specimen obtained just before death.

Two other cases of erythroblastosis foetalis can be recorded, in only one of which were atypical agglutinins demonstrated. This patient (G. B., quadrigravida, primipara) mentioned in our previous publication,³ had two spontaneous abortions and one normal full term infant. In the fourth pregnancy the baby, which died during labor, was delivered by cesarean section. A clinical diagnosis of fetal hydrops was made, but a necropsy was not performed. The blood of this patient (group A) was examined on the fourth postpartum day, four days after a transfusion with her husband's blood (group A). Atypical agglutinins could be demonstrated which acted on numerous bloods of groups O

4. The red cells of the donor (type MN) was demonstrated in the patient's blood (type M) by the method described by Landsteiner, Levine and Janes (Proc. Soc. Exper. Biol. & Med. 25: 672, 1928).

5. Diamond, L. K., in Symposium on the Blood and Blood-Forming Organs, Madison, Wis., University of Wisconsin Press, 1939, p. 66.

6. Landsteiner, K., and Wiener, A. S.: Proc. Soc. Exper. Biol. & Med. 43: 223, 1940.

ADDENDUM

Since the manuscript was submitted, anti-Rh agglutinins were demonstrated in the blood of 3 additional patients who delivered infants suffering from erythroblastosis foetalis. In 3 other cases, however, atypical agglutinins could not be found although the tests were made soon after delivery. In two of the latter and in an additional case the mother's blood contained the Rh factor, indicating that other blood factors may be involved or that an alternative explanation of the etiology exists for some cases.

The bloods of five other mothers of infants with erythroblastosis foetalis were examined at three months to three years after the delivery. In each case the mother's blood was negative for Rh while the husband's blood was positive in 4 cases tested. The blood of six infants in whom the diagnosis of erythroblastosis foetalis was made was found to contain the Rh factor.

The concept of an antigen-antibody reaction as a basis for the etiology of erythroblastosis foetalis has been previously mentioned by Ottenberg⁷ and Darrow.⁸

Clinical Notes, Suggestions and New Instruments

GAS BACILLUS GANGRENE OF LUNG

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Gangrene of the lung is a rare condition when compared to the frequency of the pneumonias, pulmonary abscesses and infarctions. It is usually secondary to other lung infections but may develop without a definite precursor. Severe debility is almost invariably associated with the diffuse form of pulmonary gangrene such as follows diabetes mellitus, protracted fevers, carcinoma or tuberculosis. Lung abscesses or bronchiectatic cavities secondary to pressure rarely become gangrenous. Large septic infarcts may quickly develop into gangrene. Likewise, pneumonic areas secondary to aspiration of infected material from the upper respiratory tract, such as occurs after anesthesia, may be the forerunner of gangrene.

Bacteria associated with pulmonary gangrene are usually of multiple types. Among the more commonly found organisms are *Streptococcus pyogenes*, *staphylococci*, *pneumococci*, fusiform bacilli and the *Spirochete* of Vincent. The association of pulmonary gangrene with extensive gas bacillus infection of the lungs is mentioned but little in the literature. Autopsy reports and textbooks on pathology imply that anaerobic bacteria are frequently found along with other organisms in the necrotic lung tissue but give the impression that they were not of great importance in causing destruction of tissue. In the case to be presented here gas bacillus organisms played the leading part in the gangrene of the lung, as shown by the conditions found on radiographic examination and at autopsy.

REPORT OF CASE

D. B., a farmer aged 41, 5 feet 8 inches (173 cm.) tall, entered Burge Hospital April 3, 1940, in the service of Dr. Robert Glynn, complaining of shortness of breath and injuries from a fist fight a week before. His past history was essentially negative except that he had worked for six years in a lead and zinc mine; he quit the mine and took up farming because of bad health. The family history was essentially negative.

7. Ottenberg, Reuben: The Etiology of Eclampsia. *J. A. M. A.* **81**: 295 (July 28) 1923.

8. Darrow, R. R.: Icterus Gravis Neonatorum. *Arch. Path.* **25**: 378 (March) 1938.

He had been married sixteen years and his wife had had no pregnancies. The patient was in a fist fight one week before entrance to the hospital. After the fight the patient lay unconscious for two or three hours. He was weak from loss of blood and from having some of his teeth knocked out. He continued to get weaker and more dyspneic. The day before entrance to the hospital the patient complained of a knifelike pain in the right lower part of the chest. He had been spitting up blood more or less continuously since onset of the present illness.

Physical examination revealed that the patient was poorly developed, poorly nourished and dyspneic, with many ecchymotic areas over the face. There was no evidence of a skull injury. The scleras were discolored from an old conjunctival hemorrhage. The pupils were equal and reacted promptly to light and to distance. Ocular movements were normal. The ears, nose and throat were normal. The breath had a foul odor and the tongue was heavily coated. Examination of the lower jaw revealed sockets of recently removed teeth filled with foul smelling clotted material. The remainder of the teeth were carious and the gum lines were retracted. The submaxillary gland on each side was palpable. The neck was freely movable. The thyroid was not enlarged. The chest was emaciated with an increase of the anteroposterior diameter. The respiratory rate was 26; movements were shallow and restricted on the right side. Breathing was noisy with asthmatic wheezing. Percussion showed hyperresonance on both sides of the chest except for dullness over the right lower portion. Blowing breath sounds were heard over the anterior right lower part of the chest, while posteriorly dry crackling rales were heard. The sputum was thick and foul smelling. The heart was of average size and in the normal location, and cardiac sounds were essentially negative. The cardiac rate was from 80 to 90 and regular, and the blood pressure was 130 systolic, 100 diastolic. The abdomen and genitalia were normal and reflexes were normal.

Examination of the sputum revealed 3 dust cells per high power field and a large number of pus cells. No tubercle bacilli were found.

A blood count showed red cells 4,350,000, white cells 9,750, hemoglobin content 80 per cent, with a color index of 0.9; the differential count was eosinophils 1 per cent, stab cells 18 per cent, segmented cells 51 per cent, lymphocytes 25 per cent and monocytes 5 per cent. The Kahn test gave a negative reaction. The urine was amber, clear and acid, specific gravity was 1.025, tests for albumin and sugar were negative and there was an occasional pus cell.

X-ray examination of the chest showed that the apexes were clear. An area of fibrosis extended from the right hilus toward the right base with questionable cavity formation. Punctate fibrosis was noted along each bronchial marking throughout the lung fields. The right lower lobe was retracted toward the heart and adherent to the diaphragm. Many air containing sacs were noted in the right lower lobe. The lower left lobe was also adherent to the diaphragm. An x-ray diagnosis of first stage silicosis, bronchiectasis and possible lung abscess was considered.

Clinically the patient had a typical attack of asthma at the time of admission to the hospital. A lung abscess was seriously considered in spite of the questionable x-ray studies. Bronchiectasis was thought to be the basis of the dilated air sacs in the right lower lobe. The oral sepsis no doubt added insult to injury.

During the first two days in the hospital the patient was quite comfortable. His temperature was of the septic type and his pulse varied between 80 to 100 a minute. On the third hospital day the patient became much worse; his temperature rose to 103.2 F. and his pulse to 140 and his color became cyanotic. He was placed in an oxygen tent and given intravenous dextrose and cardiac stimulants. He rapidly became moribund, the temperature went up to 105.2 F. and the pulse became so weak and rapid that it could not be counted. The patient died at 3:20 a. m., April 7. Dr. E. B. Hanan did the autopsy.

AUTOPSY

Gross Examination.—Two incisors were absent in the upper jaw and the right canine was loose. In the lower jaw one incisor was missing and one was out of line from its fractured socket,

as evidenced by the sensation of grating when an attempt was made to straighten the tooth. A bloodlike fluid exuded from the mouth.

The abdomen was tense; the intestine was distended with gas; there was no evidence of a ruptured viscus. The liver, gallbladder, stomach, spleen, pancreas and intestine did not grossly show any essential abnormality. The kidneys, bladder and prostate were essentially normal.

When the thoracic cavity was opened it was seen that an emphysematous border of the right lung had pushed the anterior mediastinum to the left.

The lower lobe of the right lung was a dirty gray, mottled with black pigment. The upper lobe was a darker red with the same pigment markings. The base of the lower lobe adhered to the diaphragm, forming a pocket containing about 250 cc. of a dark, foul smelling fluid. This cavity lay within the visceral pleura and involved the lung tissue. The bronchi and blood vessels extended across the sides of the opacity; the lung tissue was black and fragile. In the upper part of the cavity in the region of the main inferior bronchus was a thinly encapsulated mass, fairly firm in consistency. On section this mass appeared to be caseous. The lateral and medial portions of the lower lobe were gray on section and had the consistency of liver tissue. Pleural adhesions extended along the mediastinal border of the right base to the hilus. The apex of the upper lobe



Appearance of the lower right half of the chest. Note the possible cavity of lung abscess close to the right hilus. The right lower lobe is retracted toward the mediastinum and is adherent to the right side of the diaphragm. Numerous dilated air sacs are shown in the right lower lobe.

adhered firmly to the body wall and lighter adhesions extended along the lateral border of the lung to the base. When the lung was removed from the chest cavity crepitation was absent in the lower lobe, but on section a foul smelling gas escaped from the necrotic lung tissue and on pressure a dark red, foul smelling fluid escaped. The hilar lymph nodes were matted together in large calcified masses, one mass being lobulated and about the size of a small tangerine. The bronchi were filled with a dirty gray

exudate and the terminal bronchi in the region of the inferior main bronchus were involved in the necrotic process at the right base.

The left thoracic cavity contained about 150 cc. of a clear brown fluid. The apex of the left lung was firmly adherent, the adhesions extending down the posterior surface of the lung to the diaphragm. Adhesions were also present along the mediastinal border from the apex to the hilus. The lung surface was dark. The lung tissue was definitely emphysematous with many large distended blebs at the base. The hilar glands were enlarged, many showing calcification but not to the marked extent previously described in the right hilus. On section the lower lobe was bright red and a dark foamy fluid escaped on pressure. On section the cut surface of the upper lobe was mottled, varying from a dark red to a light gray, and did not crepitate on pressure. The bronchi contained a dirty gray exudate. A dark gray foamy fluid escaped on pressure.

The heart was small. When the pericardium was opened about 50 cc. of a brown fluid was present in the pericardial space. The visceral pericardium showed a grayish mottling and the coronary vessels were congested. The right side of the heart was empty; tricuspid and pulmonary semilunar valves were normal. The left side of the heart contained fluid blood; mitral and aortic semilunar valves were normal. The coronary orifices and arteries were normal. The aorta was normal except

for atheromatous plaques in the intima of the ascending portion. The posterior mediastinal nodes were enlarged, many showing calcification which was apparently a continuation of the process as previously noted in the hilar nodes.

The cranium was intact with no evidence of fracture of the bones of the skull. The meninges were normal in appearance. The cortical surface of the brain was obviously edematous and congested, but no gross hemorrhage was demonstrable. On section of the brain no gross abnormality was found except a diffuse edema.

Microscopic Examination.—Sections from various regions of the lung showed various stages of acute inflammatory processes; in many areas the alveoli were filled with a fibrinous exudate; the walls of the alveoli in many places were necrotic. Histologic sections of the thinly encapsulated mass previously described in the right lung proved to be an area of organized pneumonia. There was considerable replacement of fibrosis tissue. Terminal bronchi in many places were obliterated; in some areas they had disintegrated. Near the center of this reaction there was diffuse hyaline degeneration. In the periphery of this mass there was localized abscess formation. In the lung tissue adjacent to this mass there was an acute inflammatory reaction resulting in diffuse necrosis of lung tissue with its resulting hemorrhage and thrombosis of vessels.

The pulmonary lymph nodes showed much congestion and necrosis. The afferent vessels of the lymph nodes were filled with organizing thrombi.

The outstanding picture of the spleen was one of hemorrhagic necrosis. Many of the splenic lymph follicles had disappeared. Splenic vacuoles were increased in number while some of the follicles were completely destroyed by necrotic processes.

The liver showed necrosis of the central vein. The liver cells of the periphery of these necrotic areas contained bile and blood pigment.

The pancreas showed no abnormality.

The kidneys showed extensive congestion of the tufts of the glomeruli. The principal pathologic condition was distributed to the tubular areas; the epithelium of the tubules showed fatty degeneration. In the larger collecting tubules the epithelium was necrotic; in many other areas the epithelium was desquamated. Others showed interstitial hemorrhage. Many of the tubules were filled with pink hyaline casts.

Bacteriologic Examination.—Stained smears obtained from the foul smelling fluid showed the presence of a large number of various types of bacteria; morphologically there were many streptococci, staphylococci, many gram-negative bacilli and many gram-positive bacilli. Because of the morphology and the foul smelling character of the material, gas bacilli were thought to be present. Some of the material was injected intraperitoneally into a guinea pig. The guinea pig was then killed and placed in an incubator. Within twelve hours the guinea pig was considerably distended from the formation of gas.

Diagnosis.—The anatomic diagnosis was trauma on the chin and interstitial hemorrhage in both infra-orbital regions of the face, congestion and edema of the brain, healed tuberculosis, bronchiectasis, unresolved pneumonia with abscess formation, acute pneumonia with abscess formation and gangrene of the lung, degeneration of the heart, liver and spleen, and nephrosis.

CONCLUSION

An analysis and summary of all the observations in this case led us to the conclusion that the patient had a chronic lung abscess and bronchiectasis of the right lower lobe. The extreme weakness following the loss of blood and coma contributed to decrease the patient's resistance. The trauma was a factor in activating the old lung abscess. Also no doubt the patient aspirated large quantities of infected blood from the mouth.

All these conditions contributed an ideal culture medium for the growth of all the bacteria, particularly the gas bacillus, which produced the extensive gangrene of the right lung and generalized pneumonia.

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PARATYPHOID SEPTICEMIA IN MAN DUE TO
SALMONELLA SUIPESTIFER

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So far as is known, no case of septicemia due to *Salmonella* suipestifer has been reported previously in Tennessee. In 1927 Stewart and Litterer¹ reported a milk-borne epidemic of gastroenteritis at Dyersburg, Tenn., caused by this organism. It would appear that "food poisoning" cases of *S. suipestifer* are more frequent than other manifestations due to this organism. However, during the past few years several cases of continued fever caused by this organism have been reported in the United States. In 1932, Kuttner and Zepp² of the Johns Hopkins Hospital reported a series of 7 cases of *S. suipestifer* septicemia in children at Baltimore varying in age from 7 months to 6 years. Again in 1933 these authors³ described 4 similar cases in persons from 5 weeks to 28 years of age, one of whom died. Several authors in this country and abroad have reported isolated cases of *S. suipestifer* infections, some of them fatal.

S. suipestifer, or paratyphoid C organisms, were isolated from hogs by Salmon and Smith in 1885⁴ and afterward designated *Salmonella cholerae suis*. Hirschfeld first observed the typhoid-like infections due to this bacillus in the Serbian army; later, isolated cases were discovered in other parts of eastern Europe, India, Africa and the United States. In no case has any direct connection between hogs and the infection in man been shown.

REPORT OF CASE⁵

History.—G. L., a white man aged 66, a cotton mill superintendent, had lived in Elizabethton most of his life. He was 5 feet 11 inches (180.3 cm.) tall and weighed 215 pounds (97 Kg.). For the past thirty years or longer he had complained of a "missed beat" in his pulse. About ten years before admission he allegedly had chills and fever for five or six weeks and his illness was diagnosed as influenza. For several years he had complained of his right shoulder becoming cold. During the fall of 1938 he began to complain of fatigue and dyspnea, which appeared to become progressively worse for several months. Throughout the winter months he complained of "rheumatism" in his right shoulder and arm. During the week of April 23, 1939, symptoms of general malaise were noticed. On Sunday morning, April 20, while at church, he experienced chilly sensations which lasted about two hours. In the afternoon he consulted a physician relative to his condition. His temperature at this time was 102 F. At 8 p. m. while walking in the house he fell, became temporarily unconscious and vomited. About two hours later, after an apparently normal sleep, he awoke suddenly and had a severe chill followed by vomiting and profuse sweating. His physician found his axillary temperature to be 105.2 F. during the chill. The following day the patient appeared much better, and his temperature was normal. However, the next day there was another severe chill, with the axillary temperature reaching 106 F. Chills continued at irregular intervals but were less severe in character until May 17, when an unusually severe one occurred and the patient became cyanotic. During the next week his temperature ranged from normal to 102 F., with two or three mild chills occurring. On May 26 the patient died of respiratory failure.

From the Tennessee Department of Public Health.

1. Stewart, H. C., and Litterer, William: Outbreak of Gastroenteritis. Milk-Borne Epidemic at Dyersburg, Tenn., Caused by *Salmonella* suipestifer. *J. A. M. A.* 89: 1584 (Nov. 5) 1927.

2. Kuttner, A. G., and Zepp, H. D.: Paratyphoid-like Fever in Children Due to the *Salmonella* suipestifer Group. *Bull. Johns Hopkins Hosp.* 51: 373 (Dec.) 1932.

3. Kuttner, A. G., and Zepp, H. D.: *Salmonella* suipestifer Infection in Man. *J. A. M. A.* 101: 269 (July 22) 1933.

4. Havens, L. C.: The Bacteriology of Typhoid, *Salmonella*, and Dysentery Infections and Carrier States. New York, Commonwealth Fund, Division of Publications, 1935.

5. Dr. W. G. Frost, of Elizabethton, Tenn., the attending physician in the case, provided the history of the patient, and Miss Margaret Morrison, director of the Johnson City Branch State Laboratory, worked on the identification of the organism.

During the twenty-seven days of illness the patient had about twenty chills, all of which were followed by vomiting and profuse sweating. The only pain noted was headache on April 30 and an occasional pain extending from the right side of the throat to the right side of the chest. Dyspnea was severe during the last week, with the respiratory rate about 40 per minute. The patient's pulse rate ranged from 90 to 110 a minute. Diarrhea was not observed at any time. Complete loss of appetite prompted the forcing of fluids. Loss of weight was noticeable after the first week. Occasional fleeting, fine, crepitant rales were detected over the bases of the lungs posteriorly, which aroused suspicion of pneumonia. Roentgen examination on May 15 showed the lungs to be normal. A slight irregularity of cardiac action was found during the last week. No enlargement of the liver or spleen could be detected, but obesity prevented accurate palpation.

Treatment consisted mainly of irregular administration of sulfapyridine and sulfanilamide. During the last week three blood transfusions and several intravenous injections of dextrose were given.

Laboratory Examination.—At the onset, urinalysis revealed the presence of numerous leukocytes and an albumin content of 1 plus. During the second and third weeks of illness the urine was essentially normal, but during the last week albumin was present to the extent of 2 plus. Culture of a voided specimen of urine on May 19 yielded nonhemolytic streptococci; examination was negative for the typhoid bacillus and related organisms. Examination of feces on the same day gave negative results. White blood cell counts varied from 13,000 to 18,000 per cubic millimeter, with polymorphonuclear cells averaging about 84 per cent. Diligent search on numerous occasions failed to reveal the presence of malarial parasites in the blood.

Beginning on May 7, blood was sent several times to the branch laboratory of the Tennessee Department of Public Health at Johnson City for agglutination. Blood cultures for the typhoid-paratyphoid group were taken on May 19. On all occasions agglutination was negative for typhoid, paratyphoid A, undulant fever, tularemia, typhus fever and Rocky Mountain spotted fever. The patient's blood serum agglutinated a standard paratyphoid B antigen in dilutions ranging from 1:160 on May 7 to 1:640 on May 19. The organisms isolated from the culture of the patient's blood taken on May 19 were agglutinated by paratyphoid B serum in a dilution of 1:160. Blood serum from the patient completely agglutinated the bacillus obtained from culture of the patient's blood in dilutions up to 1:2,560.

The organism isolated from the culture of the patient's blood belonged morphologically and culturally to the typhoid-paratyphoid subgroup of bacteria. The fermentation reactions were characteristic of paratyphoid B with the exception of a negative reaction with Simmons' citrate agar. This discrepancy, in addition to the fact that the organisms were agglutinated by the paratyphoid B antiserum in a dilution no higher than 1:160 while they were agglutinated by the patient's own serum in dilutions up to 1:2,560, led the laboratory technician to suspect a closely allied strain of bacteria, probably paratyphoid C. Thereupon a transfer of organisms isolated from cultures of the patient's blood was sent to the National Institute of Health for complete identification. The following report was received:

"The culture of the organism . . . appears to belong to the *S. cholerae suis* (*Bacillus suipestifer*) group. It produces acid and gas in dextrose, rhamnose, sorbitol and xylose broth but fails to attack lactose, sucrose, salicin, raffinose, arabinose or trehalose in an incubation period of fourteen days. Milk becomes first acid and then alkaline. Gelatin has not been liquefied in twelve days. . . . The strain is agglutinated strongly by an antiparatyphoid C serum, which indicates that it falls within the *S. cholerae suis* group serologically as well as culturally."

Epidemiology.—No indication of the source of infection could be determined. No reported case of fever of unknown origin or of food poisoning in the county preceded this case. Mr. L. and his wife had lived alone for several years, Mrs. L. doing all the housework including cooking. Mrs. L. stated that she had never had any typhoid-like illness or symptoms of food poisoning. Mr. L. ate all his meals at home and had not been

outside of Carter County during the past six months. The only food consumed by the patient not prepared at home was an occasional barbecue sandwich brought to him from a stand in Johnson City. He drank little milk, and it was obtained from a local dairy distributing raw milk. The house occupied by the patient is on the municipal water and sewage disposal system. He was visited frequently by his grown children, none of whom gave a history of a suspicious illness in the past. There were no pets or other animals associated with the household. No employees of the cotton mill of which Mr. L. was superintendent had experienced any recent typhoid-like illness.

COMMENT

In the case of paratyphoid septicaemia due to *S. suipestifer* here reported the high agglutination titer of the patient's serum against the organisms isolated from the patient through blood cultures suggests that the organism identified was the etiologic agent rather than a terminal or accidental invader, with no suggestion as to the epidemiology. The possibility of a rodent-borne infection cannot be dismissed. This condition is rare, judging from reports in the literature. It may be that if thorough laboratory work was done in all cases of prolonged fever and of gastroenteritis the distribution of *S. suipestifer* in man would be found more widespread.

Special Articles

THE FEDERAL FOOD, DRUG AND COSMETIC ACT

AS IT APPLIES TO DRUGS DISPENSED BY
PHYSICIANS OR ON PHYSICIANS'
PRESCRIPTIONS

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The new Federal Food, Drug and Cosmetic Act, which became fully effective on July 1, 1940, is an expression of the authority conferred on Congress in the interstate commerce clause of the Constitution. All drugs that move in interstate commerce, including exports and imports, or are manufactured or sold in the District of Columbia or any of the territories, are within the jurisdiction of the act and are subject to its provisions. In many instances drugs dispensed by physicians or on a physician's direction are within the scope of the law. Even though the actual prescription of a drug may be a purely local transaction, the drug prescribed is subject to the federal law when it moves across a state line or is held for sale after such movement or is sold in the District of Columbia or a territory. However, Congress has provided certain exemptions for drugs in this class, both by direct legislative action and by the regulation making authority delegated to the administrator of the law. For a complete statement of the provisions of the law, the reader is referred to the text of the act and regulations issued to date. A copy of these may be obtained on application to the Food and Drug Administration. Likewise, a discussion of features of the act that are of particular interest to the medical profession is contained in an article which appeared in *THE JOURNAL* on Dec. 16, 1939.¹

From the numerous inquiries that have been received, it is evident that the application of the law to drugs dispensed on a physician's prescription or by a physi-

cian himself is not understood by all concerned. It seems desirable, therefore, to present a summary of those provisions of the law which must be met even after full advantage is taken of the exemptions provided by the act and its regulations. The summary to be given applies only when a drug is dispensed by or on the written prescription of a physician, dentist or veterinarian who is licensed by law to prescribe the drug in question. It does not apply to a drug dispensed in the course of the conduct of a business of dispensing drugs pursuant to diagnosis by mail. In this case all the provisions of the act without exception or exemption are applicable. Likewise, all the provisions of the act pertain when the labeling of a drug bears such information as will result in the repurchase and continued use of the drug by lay users without the direction and supervision of the physician who prescribed it or any other physician. Obviously it was the intent of Congress that substantial exemptions from the full labeling requirements of the act should be extended only to drugs which are bona fide prescription items and which are, in fact, available only on the direction of a physician. It is evident, therefore, that labeling or other printed matter which operates to circumvent this purpose shall, by the same token, serve to negate the fundamental condition on which the exemptions are granted.

Having taken full advantage of the exemptions, the following provisions still apply to drugs dispensed by physicians or on physicians' prescriptions:

1. A new drug, as defined in the act, may not be dispensed even on the prescription of a physician unless a new drug application filed with the Administrator of the Federal Security Agency has become effective. This does not mean that a qualified expert may not administer a new drug for investigational purposes after compliance with the regulations of section 505 (i) of the law.

2. The labeling of the drug shall not be false or misleading in any particular [section 502 (a)].

3. The label of the drug dispensed on the written order of a physician shall bear [section 503 (b)]:

(a) The name and place of business of the dispenser.

(b) A serial number identifying the drug dispensed and connecting it with the physician's prescription kept on file by the dispenser or the dispenser's record of the transaction or both.

(c) The date of the prescription.

(d) The name of the physician, dentist or veterinarian who wrote the prescription.

4. Where the physician's prescription is marked as "not refillable" or refilling is prohibited by state or local law, the labeling of the drug dispensed need not bear a statement of the name and quantity or proportion of alpha eucaine, barbituric acid, beta eucaine, bromal, cannabis, carbromal, chloral, coca, cocaine, codeine, heroin, marihuana, morphine, opium, paraldehyde, peyote or sulfonmethane, or any chemical derivative found to be and by regulation designated as habit forming, nor the statement "Warning—May be habit forming." For the present, it is our interpretation that the physician may direct in writing that such a prescription be filled more than once, provided the number of times is precisely stated and it is also clearly marked in writing as not refillable beyond the number of times so stated. The regulations designating

1. Klumpp, Theodore G.: The New Federal Food, Drug and Cosmetic Act—A Consideration of Features That Are of Particular Interest to the Medical Profession, *J. A. M. A.* 113: 2233-2235 (Dec. 16) 1939.

habit-forming derivatives of the substances mentioned are expected to be promulgated shortly. After they are issued, physicians may obtain a list of them by application to the Food and Drug Administration.

5. Regulations under section 502 (f) (1) exempt drugs dispensed by or on the prescriptions of physicians from the necessity of carrying directions for use, under specified conditions, since it may be assumed that the physician prescribing the drug will convey to his patient in detail the specific individually indicated directions for use. Applications for potent new drugs intended to be sold on physicians' prescriptions will not be permitted to become effective when the labeling bears any directions whatever that may serve to encourage unsupervised use.

6. Section 502 (f) (2) provides that the labeling of drugs in general shall bear such adequate warnings against use in pathologic conditions or by children when its use may be dangerous to health, or against unsafe dosage or methods or duration of administration or application, in such manner and form, as are necessary for the protection of users. Here again it may be assumed that the physician will provide his patient with warnings which will be more specific and comprehensive than anything which can be given in a general way on the labeling of drugs. Where such warnings are given and are adequate to protect the user, the purpose of the act will presumably be accomplished in most instances without resort to a statement on the labeling which would be superfluous and repetitious. However, the statute itself provides no exemption from the requirement that adequate warnings appear in the labeling.

As indicated previously, if a drug is dispensed in such form and manner and under such labeling as will enable the user to repurchase the article and continue to use it indefinitely and perhaps recommend it to friends, obviously under such circumstances only such warnings on the labeling will be adequate which will in themselves fully protect the user.

7. The law provides that official drugs shall be packaged and labeled as prescribed in the official compendiums, and in the case of unofficial drugs the administrator is authorized to prescribe by regulations such packaging and such label statements as are necessary for the protection of the public health. These regulations have not yet been issued. For the present, it may be presumed that where such packaging and labeling requirements are essential for the protection of the public health they will apply to drugs dispensed on the written prescription of a physician.

8. A drug coming under the jurisdiction of the act may not be dispensed if it is dangerous to health when used in the dosage or with the frequency or duration prescribed, recommended or suggested in the labeling thereof. Ordinarily it may be assumed that a physician will not prescribe such a dangerous drug. However, instances may arise in which the medical profession as a whole condemns the use of a drug as dangerous and despite this consensus of condemnation an individual, oblivious to such danger, may wish to administer the drug. In such a case the safeguard of the law cannot be withheld. Its effect would be to close the channels of interstate commerce to the drug. An example of this is the drug dinitrophenol, which is not now available in interstate commerce. The same applies to the so-called elixir of sulfanilamide, in which the toxic element was the solvent diethylene glycol and not the sulfanilamide.

GLANDULAR PHYSIOLOGY AND THERAPY

OVARIAN DYSFUNCTIONS AND THEIR TREATMENT

C. FREDERIC FLUHMAN, M.D.

SAN FRANCISCO

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The ovaries have three essential functions: First, they produce ova, the germ cells. Second, they elaborate or metabolize estrogenic substances, which play a primary role in the development of the female secondary sex characters and in the maintenance of the accessory genital organs. Third, in them is formed corpus luteum, an ovarian structure which appears at cyclic intervals and produces a hormone, progesterone, which is indispensable for reproduction.

Ovarian dysfunctions must be regarded as manifestations of deficiency or hyperactivity of one or more of these phenomena, but with the present knowledge a classification in terms of clinical syndromes is impossible. For this reason it is best to discuss the subject not on the basis of ovarian pathologic conditions but indirectly from evidences of gonadal disturbance obtained from the study of disorders of menstruation. It must be granted that there are disadvantages in doing this, since one must deal with symptoms rather than with disease entities, but it is the method of approach used by an overwhelming majority of clinicians. The only exceptions which may be made are in cases of a few fairly well defined clinical entities, such as precocious development, complete absence of ovarian function and metropathia haemorrhagica.

OVARIAN DYSFUNCTION DURING THE PREPUBERAL AND PUBERAL PERIODS

The first sign of active ovarian function is the development of the secondary sex characters. The earliest evidence appears at about the age of 8 years, when the breasts begin to develop and estrogenic substances become demonstrable in the blood and urine. The most striking manifestation, however, is the onset of the first menstrual period, the menarche. In this country, the average age for this event is between 13½ and 14½ years, and in the majority of instances it occurs between the ages of 10 and 16 years. The appearance of menstruation before the age of 9 is therefore regarded as precocious maturation and after the age of 16 as "delayed onset of the menses" or "primary amenorrhea."

1. *Pubertas Praecox.*—In true precocious menarche all the events of the normal physiologic process are reproduced. The secondary sex characters develop, there is an enhanced rate of body growth and the menses appear and recur at cyclic intervals. Of especial significance is the fact that the menstrual cycles are complete, with ovulation and corpus luteum formation, so that the subjects are able to become pregnant at an early age. In this category belong instances of

gestation in girls from 6 to 12 years of age. The exact etiology of such a disturbance is not known. It must be of endocrine origin, but the only demonstrable abnormality is the appearance of normal physiologic phenomena at an earlier age. Obviously, no therapy is indicated, but a careful investigation of all such patients must be made to make sure that they do not belong to the second subgroup of this division.

2. *Pseudo Pubertas Praecox*.—The majority of instances of so-called precocious menarche in the literature are not true "pubertas praecox" but represent a definite pathologic entity. In such cases the secondary sex characters develop, the pelvic organs enlarge and uterine bleeding occurs. These changes, however, merely represent an estrogenic effect. Ovulation does not take place, there is no formation of corpus luteum and pregnancy is not possible. Following suitable treatment, there is a regression of these changes and uterine bleeding ceases, but if at least one ovary is present they recur later as part of the physiologic menarche.

The cause is found in tumors which produce excessive amounts of estrogen, and, although attention has been directed to lesions of the anterior lobe of the hypophysis, thymus and pineal gland, the only clear instances have been associated with tumors of the ovaries. The treatment consists of surgical removal of the new growths, which have been described as granulosa cell tumors, sarcomas, teratomas and carcinomas.

3. *Delayed Menarche and Primary Amenorrhea*.—These terms are employed synonymously, or an arbitrary distinction is made between them, according to the age of the patient. In the latter case, delayed menarche is applied to girls between the ages of 16 and 18 years and primary amenorrhea to those beyond the eighteenth year. Both terms refer to a delay in the appearance of the first menstruation, which often is accompanied by various disturbances in other changes of the adolescent period. The secondary sex characters are often imperfectly developed or absent. The breasts remain small, and there is no hair, or only a scant amount, over the pubic and axillary regions. There may be but little deposition of fat over the hips, shoulders and thorax. Of importance is the fact that the deficiency of ovarian function leads to an imperfect development of the genital organs, especially noteworthy in the case of the uterus, which persists in an "infantile type." At times alterations in body growth are striking, and the most characteristic finding is that the patients are tall and thin, with long lower extremities and span in proportion to the length of the trunk.

Many causes have been suggested for primary amenorrhea, and attention must be directed particularly to hereditary and constitutional factors, systemic disease, environment and malnutrition. It is likewise probable that primary deficiencies of the endocrine glands, notably the anterior lobe of the hypophysis, the thyroid and the gonads, are frequently responsible.

The treatment of primary amenorrhea has proved very disappointing. In recent years estrogenic and gonadotropic substances have been widely employed in the manner described in the section dealing with secondary amenorrhea. In spite of many favorable reports, the most successful approach probably lies in the employment of suitable dietary and hygienic measures, and, whenever clinical signs and a basal metabolic test so indicate, the use of thyroid substance.

SECONDARY AMENORRHEA

Under the term secondary amenorrhea are included instances of cessation of menstruation in women who possess one or both ovaries and an endometrium capable of normal function. The period of amenorrhea may vary from a few weeks to several years. When it becomes permanent in younger women it may be considered as a "premature menopause."

In many cases the exact mechanism concerned with amenorrhea is not clear, but the focal point of the disturbance is always the ovaries, which fail to undergo a normal cycle. This may be due to some influence exerted on the gonads directly or indirectly through interference with the gonadotropic function of the anterior lobe of the hypophysis.

There are many causes of functional amenorrhea. The occurrence of normal menstruation is dependent on general good health, and failure to menstruate may be the first indication of a systemic disease. It may occur in almost any form of ill health and is found in many instances of malnutrition, intoxications and wasting diseases such as tuberculosis and diabetes mellitus. Although the reproductive organs are primarily under the control of the endocrine glands, the glands themselves are subject to the autonomic nervous system, and various emotional disturbances may lead to amenorrhea. It is well known that shock, fright, fear, worry, sexual disharmony, changes of work, climate or environment, surgical operations and certain mental diseases frequently cause a cessation of menstruation. On the other hand, the majority of amenorrheic patients suffer from a primary endocrine disturbance. A small number of these present a definite condition, such as deficiency of the anterior pituitary lobe due to tumor growth or constitutional defect, hyperthyroidism, adrenal new growth or ovarian deficiency. In many cases the exact ductless gland at fault is not discernible with certainty, as the amenorrhea is not associated with clearcut clinical manifestations; these cases present a very difficult diagnostic problem.

The treatment of secondary amenorrhea primarily demands the employment of general measures and the eradication of any organic lesion which may be responsible for it. It is a symptom which calls for extensive investigation, and attention must be directed to the existence of systemic disease, endocrine disorder, psychic disturbance, malnutrition or an unfavorable living or occupational environment. If such a factor is discovered, it necessarily follows that the cure is altogether dependent on the rectification of the condition at fault.

Among general measures, special attention must be given to personal hygiene. Proper and sufficient food is necessary, and it may be advisable to supplement the diet with vitamins and minerals. When amenorrhea exists with obesity an attempt must be made to reduce the patient's weight. A low basal metabolic rate requires the daily administration of suitable doses of thyroid substance. The patient also should take enough exercise in the open air, and at times an investigation of working hours and living conditions may give a clue to the correct therapeutic approach.

The specific treatment of amenorrhea must be directed toward a restoration of a complete ovario-uterine cyclic activity. Recent advances in knowledge of the mechanism of the menstrual cycle have shown conclusively the uselessness of emmenagogues and procedures which lead merely to an abnormal uterine hemorrhage.

The employment of low dosage irradiation of the ovaries has been championed by a number of authors both in Europe and in this country but has failed of wide clinical application owing to the individual variations in the narrow margin between safe and harmful dosages, and also because of the possibility of damage to the germ plasma which may manifest itself in later generations. Irradiation of the hypophyseal area alone, in the hope of enhancing this gland's gonadotropic function, also has been advocated, but the results are not convincing.

The appearance of active biologic preparations of estrogenic substances was at once hailed as a possible cure for amenorrhea, and many favorable reports regarding their usage have been published. In some instances ridiculously small dosages have been employed, such as 100 to 500 international units taken by mouth. In others, a total of as much as 500,000 to 1,000,000 international units has been administered by intramuscular injections of from 10,000 to 50,000 international units two or three times a week. Many patients bleed cyclically during treatment or following each course of injections, but the infrequency of a permanent restoration of menstruation arouses a doubt as to the validity of many published reports. Some authors justify this therapy on the ground that it may result in the growth of an atrophic uterus (temporary?). It is important to remember that the use of estrogenic substances is purely substitutive therapy. Estrogens have no direct effect on the ovaries, and in the endometrium they merely stimulate growth and do not produce secretory changes, which is a function of the corpus luteum. Nevertheless, estrogens are widely used in the treatment of amenorrhea, and further judgment must remain *sub judice*.

The logical substance for the treatment of functional amenorrhea should be capable of stimulating the ovaries to normal function. For this reason attention is directed particularly to anterior pituitary or equine gonadotropins, but this method of approach is still in an experimental stage.

An international standard for equine gonadotropin has only recently been established, and there is none for hypophyseal gonadotropin. Recent attempts with such substances have been inadequate, but attempts nevertheless are made by giving short courses of high doses of gonadotropin at intervals of a month. It is not possible to give any recommendations regarding dosage at the present time because of the lack of consistency in the available commercial preparations, but each manufacturer makes his suggestions for the use of his specific product.

Of importance is the fact that the employment of chorionic gonadotropin is not indicated. There is no evidence that this substance can lead to a normal development of graafian follicles in women. The only exception to this statement is that it may be used with the hypophyseal follicle-stimulating principle with the object of enhancing the gonadotropic effect of the pituitary factor.

POLYMENORRHEA AND OLIGOMENORRHEA

The menstrual cycles of normal persons are subject to considerable variation in length, but at times there is such a marked shortening or lengthening of consecutive cycles that attention is directed to them as evidence of some disorder.

Polymenorrhea.—This condition is characterized by a shortening of the average length of the menstrual cycle. The usual course of events goes on both in

ovaries and in endometrium, but the cycles last only from fourteen to twenty-five instead of the average thirty days. It is often stated that this abnormality is brought about by a hyperhormonal condition, that is by overactivity of the ovaries. This contention is open to question, and on the basis of Schroeder's studies it is more likely that it results from an ovarian deficiency which manifests itself by a premature disintegration of the corpus luteum, thus leading to a shortening of the postovulatory phase of the cycle.

Although it is the least common type of menstrual irregularity and is found in women who are normal in all other ways, polymenorrhea is an important symptom pointing to a pathologic condition. It is found frequently in the preclimacterium or in ovarian deficiencies associated with hypothyroidism, and it may have a psychogenic origin and result from fear of pregnancy or infection or from one of various sex perversions. Most often it accompanies organic pelvic disease, especially pelvic inflammation, fibromyoma uteri or uterine retrodisplacement. In such cases the shortened cycles must be attributed to vascular disturbances which directly affect the ovaries.

In most instances polymenorrhea does not call for specific therapy, as it results from some systemic or pelvic disorder. Whenever there are no apparent local or general causes, treatment is very discouraging. The endocrine factors concerned are not clearly understood, and hormonal therapy has not proved effective. It is said that cycles may be prolonged by administering large doses of estrogens, such as from 50,000 to 100,000 international units, during the early part of the cycle, but this effect is not permanent.

Since menorrhagia frequently accompanies polymenorrhea, treatment should be directed primarily to this complication. Of importance also is the establishment of a correct diagnosis, since the occurrence of too frequent menses may be confused with the hemorrhage of metropathia haemorrhagica and midinterval (ovulation) bleeding.

Oligomenorrhea.—This condition is a prolongation of the menstrual cycle beyond average limits. It is closely related to amenorrhea, and it is difficult to differentiate between the two. A woman who menstruates at intervals of three or four months may be regarded as having either oligomenorrhea or recurring periods of amenorrhea.

Treatment of oligomenorrhea is not always justified, since this symptom may be compatible with normal good health. In certain instances, for example when it is associated with sterility, it may be desirable to institute therapy, and in this case the problem should be approached exactly along the lines given for secondary amenorrhea.

HYPOMENORRHEA AND HYPERMENORRHEA

Although there is a marked variation in the length of successive menstrual cycles in women, there is a much greater constancy in the duration of the menses and the amount of loss of blood in each case. For this reason, any increase or decrease in the amount of blood lost during menstruation is of importance as indicative of a pathologic condition, but the exact role of the ovaries in such disturbances is not definitely understood.

Hypomenorrhea.—This term refers to a diminution of the amount of flow or a lessening of the duration of the menses. It is not a very frequent finding in cycles of average length. The cause, or causes, are difficult to determine, but generally it is attributed to

endocrine disorders which lead to a functional ovarian deficiency. At times, also, it occurs from an endometrial deficiency, such as follows a subtotal hysterectomy with a resultant diminution of the total area of the uterine mucosa, or a partial destruction of the endometrium by injudicious curettage, chemical treatments or extensive infections.

This symptom often accompanies oligomenorrhea, and the most important indication for treatment is its occurrence in association with sterility. Endocrine therapy is directed, as in amenorrhea, toward either (1) stimulating the endometrium with estrogenic substances or (2) attempting to influence the ovaries with gonadotropic preparations. In either case the results have not been promising.

Hypermenorrhea, or Menorrhagia.—These terms are applied to the occurrence of a succession of unduly profuse or prolonged menstrual periods following complete ovulatory cycles. A flow of more than seven days' duration should be considered abnormal. Menorrhagia may be found with cycles of average length and is a frequent accompaniment of polymenorrhea. It is an important complication, as it may bring about serious consequences, even to the point of endangering the life of the patient.

It is probable that endocrine disorders may be etiologic factors, but it is difficult to determine the exact mechanism by which profuse menses are produced. Theoretically, an excessive activity of normal ovarian function resulting in overgrowth of the endometrium prior to menstruation may result in excessive bleeding. This state of affairs is seen in some instances of hypothyroidism. As a matter of fact, menorrhagia in the vast majority of instances is observed in women with an organic pelvic disease, for example, chronic salpingitis, fibromyoma uteri, adenomyoma, subinvolution of the uterus, endometritis or a systemic condition, such as one of the various blood dyscrasias.

In all such cases, the treatment must depend on first combating the effect of the recurring hemorrhages by blood transfusions, the administration of liver extract and iron and a suitable dietary regimen. Whenever a systemic or local disturbance is noted it must be met with suitable therapeutic measures. In the total absence of apparent causative factors, local or general, various endocrine preparations may be employed, but the results are not as hopeful as they are in metropathia haemorrhagica. The use of the chorionic gonadotropin or of progesterone (as for metropathia haemorrhagica) has been widely advocated, but the results are favorable only in a limited number of instances. In many cases thyroid substance has proved of value, even in women with normal basal metabolic rates. Many other procedures have been advocated, with varying degrees of success, such as administration of solution of parathyroid, of moccasin snake venom or of insulin and irradiation of the spleen. Irradiation with roentgen rays or radium finds its greatest value in the treatment of women nearing the menopausal age, and for younger women the final resort is hysterectomy. In young or old, the possible existence of a carcinoma demands careful diagnostic precision, but a malignant condition of the uterus is not often found in instances of regular cyclic uterine hemorrhage.

ANOVULATORY MENSTRUATION

At certain times "menstruation" occurs without preceding ovulation, corpus luteum formation and secretory changes in the endometrium. It should be regarded

as a type of ovarian deficiency, since it results from failure of ovulation to take place. Clinically, the patient has periods of bleeding indistinguishable from ovulatory menstruation, so that the diagnosis must be made from an examination of the endometrium.

The frequency and clinical significance of anovulatory menstruation in women are not determined, but they are possibly factors in some cases of sterility. If treatment seems desirable, the logical approach is to stimulate follicle growth with either anterior pituitary or equine gonadotropin. The gonadotropin should be given early in the cycle, a few days after the cessation of the menses.

METROPATHIA HAEMORRHAGICA

The term metropathia haemorrhagica is applied by Schroeder to a definite endocrine entity characterized by specific changes in the ovaries and endometrium and clinically of importance because it leads to profuse uterine bleeding.

The disease is found at all ages but is especially prone to occur shortly after the menarche and in the preclimacterium. The uterine hemorrhage may manifest itself in several ways. It may be periodic in occurrence and hence simulate menorrhagia. Frequently the bleeding occurs irregularly, or it may become continuous, appearing daily for weeks or months. In a considerable number of instances it sets in after a period of amenorrhea, in which case it may be confused with threatened or incomplete abortion.

In metropathia haemorrhagica the ovaries may be slightly enlarged and contain from a few to many cysts representing various stages of follicular atresia, the most characteristic feature being an absence of corpora lutea. There is thus a failure of ovulation in these patients, so that the endometrium is constantly stimulated by estrogens in the absence of the progesterone influence. The same result is obtained in the presence of granulosa cell tumor of the ovary.

The uterine mucosa reflects this abnormal stimulation from the ovary. It is usually thickened and edematous, and the surface has irregular prominences. Histologically, the normal cyclic changes are lacking, and it presents the abnormal development known as "hyperplasia of the endometrium."

The treatment of metropathia haemorrhagica consists in the first place of treating the resultant anemia with suitable means, such as the administration of iron and liver extract and the use of blood transfusions. Of the specific procedures to control the bleeding, five of them call for especial consideration: 1. Chorionic gonadotropin may be given in large daily doses, such as from 500 to 1,000 international units, intramuscularly for from six to ten days, beginning with the onset of bleeding. The Council on Pharmacy and Chemistry of the American Medical Association recently held that the efficacy of this therapy is not clearly established, but many observers have reported favorable immediate results in as many as 75 per cent of their cases. It is most effective in younger persons, but, although it may control the bleeding, recurrences are experienced at varying intervals. 2. Injections of progesterone also may be employed, from 1 to 3 international units being given daily until the bleeding is controlled. This substance often controls the bleeding in a dosage insufficient to stimulate definite secretory changes in the endometrium. Since this substance has no direct effect on the ovaries, it is not curative. 3. Although it must be regarded as an experimental procedure, the use of

testosterone propionate is worthy of consideration and has given some encouraging results. It may be given by intramuscular injection in amounts of 25 mg. in oil twice weekly until a total of 250 to 400 mg. has been administered. There is some danger of inducing masculinizing effects when higher doses are employed. 4. The operation of curettage is at times resorted to as an adjunct to endocrine therapy when there is a marked proliferation of the mucosa and polyp formation. It is also a valuable diagnostic procedure to eliminate the possibility of a coexistent carcinoma. 5. Roentgen and radium irradiation are indicated for patients in the climacteric because they do not respond readily to endocrine therapy. Radium is preferable, since a diagnostic curettage can be done at the time of its application. From 1,200 to 1,500 milligram hours in the uterine cavity has been found suitable. 6. Hysterectomy is the last resort in cases of uncontrollable metrorrhagia haemorrhagica in young women, in which it is desired to avoid the castration produced by irradiation.

TOTAL ABSENCE OF OVARIAN FUNCTION

A complete loss of ovarian function follows surgical removal or destruction by irradiation of both gonads and is a sequence of the physiologic menopause. There are many individual variations in the reaction to ovarian deprivation, and in some instances it produces numerous local and systemic disturbances.

The lack of ovarian stimulation immediately results in cessation of menstruation and in atrophy of the accessory genital organs. The breasts likewise undergo involution, and with the removal of the inhibitory influence of the ovaries there is an overproduction of the anterior pituitary gonadotropin, which appears in great amounts in the blood and urine. Estrogenic hormones are still demonstrable in the blood and urine after castration or the menopause, a fact which speaks for an extragonadal origin for these substances.

In most cases the loss of the ovaries produces few or no symptoms requiring therapy, but at times a long train of disturbing elements enter into the picture. The most frequent subjective symptom is "hot flushes," a result of vasomotor instability. Their incidence is usually placed at between 60 and 90 per cent of all cases. There also may be tachycardia, palpitation, dyspnea, choking sensations, insomnia and headaches. A certain number of women at the climacteric have an increase of blood pressure, but many authors attribute this condition to cardiovascular or renal disease, which is especially prevalent in this age group. At times, various psychoses may develop in unstable persons. The libido may undergo no change, although usually it is diminished. Hirsutism is occasionally found, and obesity frequently results.

The first step in the treatment of a patient with symptoms resulting from castration or the menopause is to direct attention to her general health. She should be encouraged to take plenty of exercise, preferably outdoors, and sufficient restful sleep. Hot baths or cold showers may be employed to advantage. A full life with vital interests, diversions and recreation should be encouraged. A suitable vacation or change of climate is often of great benefit. A correct diet is essential, and in the presence of obesity it should be controlled. Of importance is the patient's mental attitude, and the number and the intensity of the nervous and psychic manifestations of the climacteric may be greatly influenced by a helpful talk with a sympathetic physician. Women with intense psychic manifestations may require psy-

chiatric supervision. In many cases mild sedatives, such as bromides or phenobarbital, are of distinct value in controlling nervousness, insomnia and vasomotor symptoms.

The specific measures employed in the treatment of symptoms of the climacteric aim at a direct control of endocrine changes, and the most important is the administration of estrogenic substances. They have been instrumental in bringing relief to a high percentage of patients with vasomotor and nervous symptoms. Many authors advocate the continued employment of small doses, such as from 50 to 200 international units orally two or three times a day, increasing gradually until relief is obtained.¹ In cases of severe symptoms it is better to give short concentrated courses of estrogens by intramuscular injection. For instance, from 5,000 to 50,000 international units in oil may be given every three or four days for periods varying from two to five weeks. By this means relief is readily obtained, but it may be necessary to repeat such courses of treatment at intervals of a few months.

Estrogenic substance performs another valuable service in the treatment of symptoms resulting from atrophy of the accessory genital organs, especially "senile vaginitis." In such cases, the substance is used in the form of vaginal suppositories containing 2,000 international units which can be inserted each evening by the patient herself.

Recently a number of authors have demonstrated that administration of the androgen testosterone is also effective in controlling postcastration and postmenopausal symptoms. This method has as yet been insufficiently studied, and two objections are apparent: First, the available preparations are very expensive and, second, overdosage may lead to undesirable masculinizing effects, such as facial hirsutism, enlargement of the clitoris and a change of the voice.

PREMENSTRUAL TENSION

During the premenstruum many women experience nervousness, irritability, tendency to cry, malaise, cold sensations, nausea or abdominal distention. In some instances these symptoms are markedly accentuated and cause patients to seek relief. Although psychic factors often are in the background, many authors believe that the symptoms result from an endocrine disturbance. Frank gave to this state the appropriate name of "premenstrual tension," and the term is now generally used in medical literature. Although no conclusive evidence in support of this concept had been advanced, he attributed the condition to an excess of estrogen in the blood and advocated the employment of magnesium sulfate in order to eliminate the hormone as speedily as possible.

The wide variety of therapeutic agents advocated for this distressing condition is a warning against premature explanation of its causation. If excess of estrogen is the cause, the administration of estrogenic substances should intensify the symptoms. This is often the case, but at times such a method of treatment brings relief. Some investigators administer progesterone, others testosterone, by intramuscular injection. Of especial interest is the suggestion made recently that premenstrual tension results from the generalized edema which is so often an accompaniment of this stage of the menstrual cycle. In order to offset this effect, it has been suggested that patients be placed on

1. Some authorities favor giving a preliminary course of intramuscular injections. When relief is obtained, the estrogen is administered orally, and the daily dose is diminished until a "maintenance level" is determined.

a salt-free diet and take 0.6 Gm. of ammonium chloride three times daily for two weeks before an expected period.

INTRINSIC DYSMENORRHEA

Pelvic pain occurring just before or at the time of menstruation in the absence of gross lesions has been termed intrinsic, primary, idiopathic, essential or functional dysmenorrhea. It is frequently complained of, but the exact incidence is not known, owing to the difficulty of interpreting the subjective symptom "pain" in different persons. There are many conflicting reports on the subject.

Intrinsic dysmenorrhea is essentially a disease of the third decade, but it may persist throughout menstrual life. It may have its inception at the menarche or after a few years of painless menstrual periods. The most common type of pain is sharp, cramping and intermittent, and is referred to the midline in the lower part of the abdomen, extending at times to the back or thighs. It is often accompanied by headache, backache, general pain, nervousness, irritability, nausea, vomiting, joint pains or gastrointestinal disorders. The time at which the pain begins varies considerably. It may start a few hours before the onset and continue during menstruation, or it may be present in the premenstruum and cease when the menses appear. In still other instances the patient suffers only during the flow. The duration is from a few hours to several days.

This subject is treated in this chapter in order to complete the general discussions included in the book "Glandular Physiology and Therapy," but this must not be interpreted as an admission that intrinsic dysmenorrhea has been proved to be ovarian dysfunction. The immediate factor producing dysmenorrhea is held to be a disordered or spasmodic contractility of the uterine musculature, but the basic cause is unknown, although many theories have been advanced. For instance, it has been suggested that intrinsic dysmenorrhea is the result of a congenital obstruction of the cervical canal, of purely psychogenic factors, of hypoplasia of the uterus, of overactivity of the abdominopelvic sympathetic nerve, of painful separation of a decidua cast or of constriction of the uterine arteries. There is likewise no lack of speculation regarding the role of the endocrine glands. It has been said that dysmenorrhea is caused by a deficiency of estrogens, an excess of estrogens, a lack of progesterone, an excess of progesterone, thyrotoxicosis, hypoglycemia and calcium deficiency.

In keeping with the vast array of theories advanced for the cause of dysmenorrhea are the countless therapeutic measures which have been recommended. It is impossible to record them all in this brief review, but mention may be made of some specific endocrine measures at present under investigation. In each instance favorable results have been reported, but the whole problem must be regarded as still in an experimental stage.

1. Estrogenic hormones are used in the belief that they may serve to overcome uterine hypoplasia and degenerative changes in the cervical ganglions and to produce dilatation of the endometrial blood vessels. Several methods of administration have been described. These substances have been given by mouth in daily doses of 100 to 500 units during the whole menstrual cycle. Some authors give intramuscular injections of 10,000 to 50,000 international units during the premenstruum. Still other investigators recommend the injection of 5,000 to 15,000 international units every three to four days over a period of three months, but

such high dosages may disturb the cycle, lengthening it from one to three weeks.

2. The trial of progesterone is warranted because it has an inhibitory effect on the contractility of the uterine muscle. The minimal effective dose has not been ascertained, but $\frac{1}{4}$ to one or even more international units may be given intramuscularly two or three times a day, beginning a few days before an expected menstrual period. The advent of an orally effective progestin-like substance, pregnenolone, also presents possibilities, but no reports of well controlled studies are available.

3. Of especial interest have been the recent reports on the employment of testosterone propionate. This substance is given by intramuscular injection in doses of 10 or 25 mg. twice or three times a week over a period of one to two months. One wise recommendation limits the total dosage to 200 mg. given during one menstrual cycle and 150 mg. during the second.

4. The employment of chorionic gonadotropin was in vogue for a short time, but it is probably of no value beyond psychotherapeutic effects.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

OFFICE OF THE SECRETARY.

ADRENAL CORTEX EXTRACT

The cortex of the adrenal gland is essential for life. Adrenalectomized animals die in a few days. During the acute stages of adrenal insufficiency, occurring in disease or as the result of experimental procedures in animals, conditions commonly observed include blood concentration, low blood pressure, gastrointestinal disturbances, asthenia, subnormal temperature and low basal metabolic rate. There also may be found loss of sodium and retention of potassium in most species, loss of carbohydrate reserves with hypoglycemia and retention of nitrogenous products in the blood. Injections of suitable extracts of adrenal cortex which contain little or no epinephrine restore even moribund animals to apparently vigorous health for as long as the injections are continued.

Extracts of the adrenal cortex contain several potent substances which influence to a variable degree electrolyte, water or carbohydrate metabolism; however, no one of these substances and no synthetic substance has yet been shown to possess all of the effects of a potent cortical extract.

Crystalline compounds have been isolated from the cortex which are capable of maintaining the life of adrenalectomized animals and restoring toward normal the metabolic conditions induced by adrenal insufficiency. These compounds are steroids, and the most potent of them are corticosterone and dihydrocorticosterone. Many other steroids have been isolated from this tissue, but most of these have little known physiologic activity.

The chemical structure of the cortical steroids is closely related to that of the sex hormones; in fact, some of the cortical steroids have estrogenic or androgenic properties and, in certain abnormal conditions of the cortex, large amounts of estrogens or androgens may be recovered in the urine. On the other hand, the sex hormone progesterone has life maintaining properties in adrenal insufficiency, while other sex hormones such as estrone and testosterone are capable of inducing electrolyte changes similar to those produced by cortical steroids.

Adrenal cortex extracts have been assayed in many ways. There are advantages to each of the various methods, but it appears that the maintenance of life in the adrenalectomized animal is the most significant measure of activity for such extracts. For purposes of N. N. R. description, the Council has recognized the assay method devised by Pfiffner, Swingle and Vars (*J. Biol. Chem.* 104:701, 1934) or the slight modification used by Cartland and Kuizenga (*Am. J. Physiol.* 117:678,

1936). By these methods the activity of adrenal cortex preparations is expressed in terms of dog units for uniformity of labeled potency. An alternate assay method using adrenalectomized rats according to the procedure of Cartland and Kuizenga (*Am. J. Physiol.* 117:678, 1936) may also be employed and the results transposed in terms of dog units, provided sufficient data are presented that such a comparison of assays is justified. No preparation of adrenal cortex extract will be accepted for inclusion in New and Nonofficial Remedies that does not have a minimum of 40 Gm. of gland concentrated in 1 cc. of extract.

Desoxycorticosterone, one of the components of adrenal cortex but which is prepared synthetically, is capable of maintaining life in adrenalectomized animals. Desoxycorticosterone differs from extracts of the adrenal cortex in being relatively inactive by mouth and in being chiefly concerned with salt and water metabolism. The adrenal cortex has other activities such as a role in the regulation of carbohydrate, fat and protein metabolism. Therapy with desoxycorticosterone is promising but, as yet, only on an experimental basis. The status of this therapy, including the possibility of harmful reactions and contraindications, is discussed in a Council report (*J. A. M. A.* 114:2549, 1940).

ADRENAL CORTEX EXTRACT (UPJOHN).—An extract of adrenal glands, from domesticated animals used as food in man, containing the cortical steroids essential for the maintenance of life in adrenalectomized animals. Only traces of epinephrine are present.

Actions and Uses.—Although the extract is active by mouth, this method of administration for therapeutic purposes is not practical; the usual methods of administration are subcutaneous, intramuscular or intravenous injection. The extract is of value in the treatment of Addison's disease or of adrenal insufficiency of other types, and in surgical procedures involving the adrenal cortex when prophylactic measures are needed to prevent the development of temporary adrenal insufficiency. There is as yet no conclusive proof of the value of the extract in the so-called borderline cases of adrenal insufficiency.

Dosage.—The amount required for therapeutic purposes varies widely according to the degree of cortical insufficiency, the condition of the patient, the presence of infection or other complications, and during a crisis. The clinical response of the patient should govern the dosage. As much as 2,500 to 5,000 dog units within a few hours may be required for a patient in a severe crisis, while from 100 to 500 dog units daily may be sufficient substitution in many cases of Addison's disease. Large amounts of sodium chloride or other sodium salts, as well as a diet which is low in potassium, are of definite value in supplementing adrenal cortex extracts.

Manufactured by The Upjohn Company, Kalamazoo, Mich. U. S. patent 2,053,549 (Sept. 8, 1936; expires 1953); and 2,096,342 (Oct. 19, 1937; expires 1954). No. U. S. trademark.

Sterile Solution Adrenal Cortex Extract, 10 cc. vials: Each cubic centimeter contains not more than 3 mg. of gland extractives and has a potency equivalent to 50 dog units when assayed by the Cartland and Kuizenga method. The vehicle is physiologic solution of sodium chloride containing alcohol 10 per cent as a preservative.

Adrenal cortex extract (Upjohn) is prepared by the method of Cartland and Kuizenga (*J. Biol. Chem.* 116:57, 1936). Frozen beef adrenal glands are extracted with chilled acetone and the gland residue removed by filtration. The acetone extract is concentrated in vacuo below 45 C. and the aqueous fraction so obtained is freed of inactive lipid substances by filtration and extraction with petroleum ether. The aqueous fraction is extracted with ethylene dichloride, which removes the adrenal cortex activity, leaving the epinephrine behind in the aqueous phase. Ethylene dichloride is removed in vacuo, and the residue is dissolved in alcohol and partitioned between 70 per cent alcohol and petroleum ether. The 70 per cent alcohol solution is concentrated in vacuo below 45 C., and sodium chloride is added to the aqueous residue to make 0.9 per cent. An inactive precipitate is removed by filtration. Alcohol is added to make 10 per cent, and the solution is sterilized by Berkefeld filtration.

Adrenal cortex extract (Upjohn) is assayed biologically according to the Cartland and Kuizenga method (*Am. J. Physiol.* 117:678, 1936). Each cubic centimeter is obtained from not less than 40 Gm. of gland and contains not less than 50 dog units (2.5 rat units) when assayed according to the method of Cartland and Kuizenga. This assay method depends on the maintenance of life in adrenalectomized dogs. The epinephrine content of the extract as determined by the U. S. P. dog blood pressure method is less than 1:200,000.

ANTIPNEUMOCOCCIC SERUM, TYPE I (See New and Nonofficial Remedies, 1940, p. 429).

Mulford Biological Laboratories, Sharp & Dohme, Inc., Philadelphia.

Antipneumococcic Serum Type I, Refined and Concentrated-Mulford.—(See New and Nonofficial Remedies, 1940, p. 430—formerly Pneumococcus Antibody Globulin Type I-Mulford). It is marketed in packages of one ampule-vial containing 20,000 units and packages of one ampule-vial containing 50,000 units accompanied by a vial containing a 1:10 dilution of serum for the sensitivity test.

Council on Foods and Nutrition

ACCEPTED FOODS

THE FOLLOWING ADDITIONAL FOODS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO ACCEPTED FOODS.

FRANKLIN C. BING, Secretary.

FRUIT JUICES INCLUDING TOMATO JUICE (See Accepted Foods, p. 48).

Frank Farnsworth Fruit Farm, Waterville, Ohio.

FARNSWORTH BRAND APPLE JUICE UNSWEETENED.

Analysis (submitted by manufacturer).—Moisture 88.6%, total solids 11.4%, ash 0.2%, protein ($N \times 6.25$) 0.1%, invert sugar 8.8%, sucrose 2.2%, carbohydrates other than crude fiber (by difference) 11.1%, specific gravity 1.052, titratable acidity expressed as malic acid 0.54%, malic acid content 0.39%. Tests of lead and arsenic show that the product complies with Council requirements for freedom from toxic spray residues.

The firm reports (1940) that the product contains from 0.11 to 0.43 mg. of ascorbic acid per hundred grams of juice.

Calories.—0.44 per gram; 12 per ounce.

GRAIN PRODUCTS (See Accepted Foods, p. 95).

Pillsbury Flour Mills Company, Minneapolis.

PILLSBURY'S FARINA WITH ADDED VITAMIN B₁, heat treated farina enriched with thiamine hydrochloride in such an amount that the product provides 900 international units of vitamin B₁ per pound.

Analysis (submitted by manufacturer).—Moisture from 9 to 12%, total solids from 91 to 88%, ash 0.4%, protein ($N \times 5.7$) from 10.2 to 10.6%, fat (ether extract) from 0.5 to 0.8%, reducing sugars as dextrose¹ from 0.2 to 0.3%, sucrose from 0.9 to 1.3%, total carbohydrate other than crude fiber (by difference) from 78.6 to 77.6%, crude fiber from 0.3 to 0.5%.

The firm reports (1940) that the product contains approximately 1.97 international units of vitamin B per gram, 56 per ounce, 900 per pound.

Calories.—from 3.52 to 3.64 per gram; from 100 to 103 per ounce.

PREPARATIONS USED IN THE FEEDING OF INFANTS (See Accepted Foods, p. 156).

H. J. Heinz Company, Pittsburgh.

HEINZ BRAND CHICKEN FARINA VEGETABLE PORRIDGE WITH MILK, WHEAT GERM AND YEAST, a canned cooked mixture of milk, chicken, farina, wheat germ, dried brewers' yeast, celery, carrots, onions, sodium chloride and parsley.

Analysis (submitted by manufacturer).—Moisture 87.6%, total solids 12.4%, ash 1.3%, fat (ether extract) 0.6%, protein ($N \times 6.25$) 2.9%, crude fiber 0.5%, total carbohydrates other than crude fiber (by difference) 7.1%, sucrose (Munson and Walker Method) 1.0%, calcium (Ca) 0.043%, phosphorus (P) 0.072%, iron (Fe) 0.0023%, copper (Cu) 0.00036%.

According to report of biologic assay (1939) this product contains 125 international units of vitamin A, 38 international units of vitamin B₁ and 42 Sherman-Bourquin units of riboflavin per hundred grams. Report of chemical titration (1939) shows the product contains 34 international units of vitamin C per hundred grams.

Calories.—0.45 per gram; 13 per ounce.

SUGARS AND SYRUPS (See Accepted Foods, p. 324).

A. E. Staley Manufacturing Company, Decatur, Ill.

STALEY'S SWEETOSE BRAND CRYSTAL SYRUP, containing sweetose (a brand of corn syrup) and granulated sugar syrup slightly flavored with vanilla extract.

Sweetose is a registered trade name for a corn syrup prepared according to United States Patent No. 2,201,609, May 21, 1940. In its production a mixture of cornstarch and water is subjected to acid hydrolysis until the dextrose content is about 40 per cent. The mixture then is neutralized, clarified and subjected to the further action of saccharifying enzymes from fungus until the syrup has a reducing sugar content calculated as dextrose of about 62 per cent. At this point the syrup is heated to 170 F. and maintained at this temperature for a sufficient time to inactivate the mold enzymes. The syrup is further refined by repeated filtrations through bone charcoal and concentrated under vacuum to the desired consistency.

The syrup obtained by this dual conversion process contains 64.5 per cent reducing sugar calculated as dextrose and 34.2 per cent dextrins. Ordinary corn syrup contains about 42 per cent reducing sugars calculated as dextrose, and 65.5 per cent dextrins. Because of its composition Sweetose is sweeter than ordinary corn syrup and has a lower viscosity.¹ Its characteristics make it useful as a sweetening ingredient in frozen dairy products.² It is a satisfactory carbohydrate supplement in the feeding of infants.³

Analysis (submitted by manufacturer).—Moisture 25.5%, total solids 74.5%, ash (residue remaining at 500-550 C.) 0.3%, reducing sugars as dextrose 45.0%, sucrose 5.5%, dextrins 23.0%, total carbohydrates 74.2%.

Calories.—3.0 per gram; 85 per ounce.

1. Determined according to the method of Schoorl, N., and Bogen-Regen, A.: *Massanalytische Zuckerbestimmung*, Ztschr. f. anal. Chem. 56: 191, 1917.

2. Improved Sweetening Agent Developed from Corn Syrup, *Food Industries* 12: 62 (Jan.) 1940.

3. Tracy, P. H., and Edman, G.: Tests of Enzyme-Converted Corn Syrup Reveal Desirable Properties, *Food Industries* 12: 43 (Dec.) 1940.

Unpublished data supplied by Dr. Irving J. Wolman, Children's Hospital, Philadelphia.

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SATURDAY, MARCH 1, 1941

PARENTERALLY ADMINISTERED NITROGEN

Although the intravenous administration of nutrient dextrose is a method regularly employed in the clinic, this procedure furnishes no other nutritional elements except water. The requirement for electrolyte may be also readily fulfilled by the use of saline solution, and some efforts have been made to meet the nutritional and metabolic needs for fat by the intravenous administration of fine emulsions of fat.¹ The problem of protein requirement is more difficult; moreover, the importance of protein in the diet frequently becomes accentuated in instances in which oral intake of this foodstuff becomes difficult or impossible. Several approaches are available for parenteral administration of protein and some of these have yielded encouraging results. It has been possible² to maintain nitrogen equilibrium by the intravenous administration of plasma. However, the quantity of plasma required daily in order to meet the minimum protein requirements is relatively large. Furthermore, unhydrolyzed proteins, in the form of plasma, although perhaps making immediately available material for the replenishment of the plasma proteins, may not be directly utilizable for other body proteins. These must be synthesized in a specific manner from amino acids, for the problem of meeting the protein requirements of the entire organism is essentially one of supplying an adequate mixture of amino acids in sufficient quantity.

The demonstration that nitrogen metabolism requirements may be met not only by protein but by administration of a mixture of amino acids has greatly facilitated the possibility of meeting the nitrogen needs of the body. The recent investigations of Rose and his colleagues,³ using mixtures of pure amino acids, have shown that by supplying only nine pure amino acids

in the diet of the young rat the requirements for normal growth and nutrition can be met. Similar observations have been made with respect to the maintenance of nitrogen balance in dogs. Recently, Mitchell and his collaborators⁴ have studied the problem of the amino acid requirements for maintenance of nitrogen equilibrium and have shown that the adult rat can be maintained in nitrogen equilibrium on a nitrogen supply containing only seven amino acids. These data immediately suggest a simple procedure for meeting the patient's needs for nitrogen when the parenteral route is indicated. However, the high cost of the individual amino acids makes impractical the intravenous administration of mixtures of these compounds.

An economical approach to the problem of providing amino acids involves the hydrolysis of a relatively pure, cheap and complete protein to its constituent amino acids, removal of the hydrolytic reagents to render the mixture nontoxic, and utilization of the mixture for intravenous injection. Thus, Elman and Weiner⁵ employed an amino acid mixture prepared by the acid hydrolysis of casein. Two amino acids, tryptophan, which is destroyed by acid hydrolysis, and cystine, which is low in casein, were added to the hydrolysate mixture, which was then made up as a 10 per cent solution, passed through a sterile Seitz filter and poured directly into 5 or 10 per cent dextrose solution as ordinarily prepared for routine use. Each liter contained about 20 Gm. of amino acids and 80 Gm. of dextrose. This volume of the solution could be given slowly over two hours, with none of the amino acids appearing in the urine and without objective reactions. Subjectively, some patients reported a sense of warmth; there was evident a slight peripheral vasodilatation. Of some twenty patients given amino acids intravenously, eight received large amounts of amino acids for more than one or two days. Chemical and clinical observations indicated rapid utilization of the injected amino acids, and nitrogen balance was achieved in some instances immediately after the first injection. Regeneration of serum protein with concomitant reduction of the nutritional edema were also evident in some cases.

The observations of Elman and Weiner have been confirmed and expanded by other investigators. Shohl and his collaborators,⁶ working with normal infants, succeeded in establishing positive nitrogen balance by either oral or intravenous administration of hydrolyzed casein prepared by enzymatic digestion. Although native casein was shown to be absent by negative sensitization tests with guinea pigs, febrile reactions were noted in most instances. However, Farr and MacFayden⁷ have reported the clinical use of an enzymatic digest of casein with no untoward reactions and with

1. Holt, L. E., Jr.; Tidwell, H. C., and Scott, T. F. M.: The Intravenous Administration of Fat: A Practical Therapeutic Procedure, *J. Pediat.* **6**: 151 (Feb.) 1935.

2. Holman, R. L.; Mahoney, E. B., and Whipple, G. H.: Blood Plasma Protein Given by Vein, Utilized in Body Metabolism, *J. Exper. Med.* **59**: 269 (March) 1934.

3. Rose, W. C.: *Physiol. Rev.* **18**: 109 (Jan.) 1938. Rose, W. C., and Rice, E. E.: *Science* **90**: 186 (Aug. 25) 1939.

4. Burroughs, E. W.; Burroughs, H. S., and Mitchell, H. H.: *J. Nutrition* **19**: 363 (April) 1940.

5. Elman, Robert, and Weiner, D. O.: Intravenous Alimentation, *J. A. M. A.* **112**: 796 (March 4) 1939.

6. Shohl, A. T.; Butler, A. M.; Blackfan, K. D., and MacLachlan, E.: *J. Pediat.* **15**: 469 (Oct.) 1939.

7. Farr, L. E., and MacFayden, D. A.: *Proc. Soc. Exper. Biol. & Med.* **42**: 444 (Nov.) 1939.

good utilization of the administered nitrogen in four children with nephrosis. The analytic data indicate that the nitrogen supplied by the amino acid mixture was utilized for nutritional purposes. More recently, Altshuler, Hensel and Sahyun⁸ have reported the establishment of nitrogen equilibrium in both normal and postoperative patients following the subcutaneous or intravenous injection of a mixture containing all the essential amino acids in the form of a hydrolysate of casein supplemented with tryptophan and cystine.

The chief problem at present appears to be the development of a reproducible method for the preparation of the amino acid mixtures. Enzymatic digestion of a protein like casein, which contains a representative mixture of amino acids, suffers from the difficulty of reproducibility and from the possibility of unpleasant clinical reactions due to larger molecules of the peptone type. Acid hydrolysis of the protein, the simplest of the hydrolytic procedures, destroys the amino acid tryptophan and some cystine. The high cost of the former amino acid is again a problem, since efficient utilization of the parenterally administered amino acid mixture appears possible only in the presence of tryptophan and the other essential amino acids. The problem of a convenient and economical method of preparing a protein hydrolysate suitable for injection does not, however, appear to be insurmountable. Its solution should open the way to further important applications of the methods which have given favorable results in clinical studies of the utilization of parenterally administered nitrogen.

ENCEPHALOMYELITIS IN MICE

The close resemblance between human poliomyelitis and spontaneous encephalomyelitis in mice enhances the value of recent contributions to the epidemiology of this veterinary disease. Seven years ago Theiler¹ found an occasional young mouse with flaccid paralysis of the hind legs among the stock mice purchased by his laboratory. Stock mice similarly affected have subsequently been described by numerous European and Asiatic investigators,² an average of about one purchased mouse in 3,000 exhibiting this disease. Five strains of the specific neurotropic virus responsible for this paralysis have been isolated by Theiler and propagated by brain to brain inoculation.

In mice injected intracerebrally with this isolated virus the first sign of the infection is almost invariably a weakness of one of the fore limbs, which usually develops after an incubation period varying from seven to thirty days. This weakness is progressive, rapidly changing to a flaccid paralysis and almost invariably

ending in paralysis of both hind legs. In a few of the animals the disease may be arrested at this stage. In a slightly larger percentage, severe paralysis with emaciation of the hind legs may persist for many months. In most mice, however, the paralysis ends fatally. A fairly large percentage of the younger mice may even die before showing distinct paralytic symptoms.

Mice which survive the experimental infection are almost invariably carriers of the virus, the infectious agent being recoverable from the spinal cord for at least one year after the date of inoculation. Paralyzed mice are immune to a second intracerebral injection, as are also a number of mice which have not shown signs of paralysis after the first intracerebral injection. Intranasal instillation of massive doses is the only other way of transferring the disease.

The anatomic basis of the paralysis is an acute necrosis of the ganglion cells of the anterior horn of the spinal cord. Ultrafiltration experiments show that the virus is approximately 13 to 19 millimicrons in diameter, about the same size as human poliomyelitis virus. Attempted cross immunizations, however, suggest that there is no antigenic similarity between the two infectious agents.

Interest in encephalomyelitis of mice was heightened by the more recent discovery by Olitsky³ that an infectious agent indistinguishable from Theiler's neurotrophic virus can be isolated from the intestinal contents of normal mice. Almost every one of the normal stock mice from 1 to 2 months of age was found to be a carrier of an intestinal virus which on intracerebral inoculation into normal mice induced the characteristic paralytic symptoms. Theiler and Gard⁴ afterward found that at least two thirds of their normal stock mice approximately 6 months of age passed the neurotrophic virus in the feces. In normal mice which pass this virus the infectious agent has been repeatedly demonstrated in the intestinal walls but has never been found in the central nervous system, thoracic viscera or other abdominal organs, with the sole exception of its occasional presence in the mesenteric lymph glands.

Mice are apparently free from this intestinal virus at birth and presumably acquire the infection shortly after weaning. The intestinal infection may persist for at least six months, at which time it usually ends spontaneously. As a result of this carrier condition the mice may develop a partial immunity. If so, immunity with age might cease to be synonymous with sexual maturity. For some unknown reason this apparently nonpathogenic intestinal virus invades the central nervous system in about one mouse in 3,000, producing paralytic symptoms. Poliomyelitis in mice, therefore, is a rare and accidental event, presumably due to some unknown gastrointestinal disturbance or deficiency in

8. Altshuler, S. S.; Hensel, H. M., and Sahyun, M.: *Am. J. M. Sc.* **200**: 239 (Aug.) 1940.

1. Theiler, Max: *J. Exper. Med.* **65**: 705 (May) 1937.

2. Sabin, A. B., and Olitsky, P. K.: *J. Exper. Med.* **67**: 201 (Feb.) 1938. Gildemeister, E., and Ahlfeld, I.: *Centralbl. f. Bakt.* **142**: 144 (Aug. 18) 1938. Iguchi, Masao: *Kitasato Arch. Exper. Med.* **16**: 56 (Jan.) 1939.

3. Olitsky, P. K.: *Proc. Soc. Exper. Biol. & Med.* **41**: 434 (June) 1939; *J. Exper. Med.* **72**: 113 (Aug.) 1940.

4. Theiler, Max, and Gard, Sven: *J. Exper. Med.* **72**: 79 (July) 1940.

specific antibody production. There is, of course, no evidence at the present time that these results are applicable to human poliomyelitis.

Current Comment

DANGEROUS DRUGS

The Federal Food, Drug and Cosmetic Act prohibits, among other matters, the introduction or delivery for introduction into interstate or foreign commerce or commerce within the District of Columbia or the territories, or the manufacture within the District of Columbia or one of the territories, of a drug that is misbranded. Section 502 (j) provides that a drug shall be deemed to be misbranded if it is dangerous to health when used in the dosage or with the frequency or duration prescribed, recommended or suggested in its labeling. The Food and Drug Administration has informally declared that there are a number of drugs which are in fact dangerous if consumed other than on expert advice and under constant supervision. There are other drugs, however, which may safely be distributed to the public for consumption in small doses under labels bearing adequate directions for use and adequate warnings against misuse but which become dangerous drugs for self medication when administered in larger doses. With the understanding that it is not possible to list all of the preparations which fall under either of these two categories, the Food and Drug Administration has from time to time informally announced, as a guide to the drug industry and to pharmacists, that the drugs listed in the following statement are dangerous to health and should not be distributed over the counter for indiscriminate lay use but should be sold only on the prescription of a physician, dentist or veterinarian:

1. Drugs containing significant amounts of such ingredients as:

Aconite.
Aminopyrine.
Aspidium (male fern).
Benzedrine sulfate (for internal administration).
Cantharides (for internal use).
Carbon tetrachloride.
Chenopodium oil.
Chrysarobin.
Chrysophanic acid.
Cinchophen and its derivatives, including neocinchophen.
Colchicine.
Colchicum.
Digitalis (in therapeutically effective proportion).
Dinitrophenol.
Emetine.
Goa powder.
Phosphorus or phosphides.
Radium.
Santonin.
Squill (in therapeutically effective proportion).
Strophanthus or other pharmacologically related drugs (in therapeutically effective proportion).
Sulfanilamide.
Sulfapyridine.
Sulfathiazole.
Tetrachlorethylene.
Thiocyanates.
Thymol.
Thyroid.

2. Drugs in certain dosages or concentration:

Bromides if dosage provided involves the consumption of more than 30 grains a day or more than 15 grains during any three hour period.
Acetanilid if dosage provided involves the consumption of more than 5 grains daily or more than 2½ grains during any three hour period.

Bromide-acetanilid combinations if dosage provided involves the consumption of more than a total daily dose of 15 grains of a bromide and 5 grains of acetanilid, or more than 7½ grains of a bromide and 2½ grains of acetanilid during any three hour period.
Acetophenetidin if the daily dosage provided exceeds 15 grains.
Antipyrine if the daily dosage provided exceeds 15 grains.
Epinephrine in a solution of 1 per cent or stronger.
Ipecac if the daily dosage provided exceeds 10 grains.
Strychnine if the daily dosage provided exceeds ½ grain.
Ointments containing more than 0.2 per cent of mercury bichloride or more than 5 per cent of ammoniated mercury.

The Food and Drug Administration has also issued an informal warning to the drug industry and to pharmacists that drugs labeled "Caution: To be used only by or on the prescription of a physician [or a dentist or a veterinarian]" should not be sold otherwise than on prescription.

VITAMIN K AND THE DAMAGED LIVER

The response of patients with hypoprothrombinemia to the administration of the antihemorrhagic vitamin K is commonly incomplete. Brinkhous and Warner¹ studied the effect of vitamin K on animals with experimental liver injury. It will be recalled that an experimental prothrombin deficiency may be produced by injury to the liver or by partial or complete extirpation of that organ as well as by withholding vitamin K from the diet or preventing the absorption of this factor. The effectiveness of vitamin K in raising the prothrombin level of the blood and, consequently, correcting the tendency to hemorrhage in cases in which an existing hypoprothrombinemia is due to a deficiency of vitamin K is well appreciated. In contrast, Brinkhous and Warner have now demonstrated that, when the low level of blood prothrombin is due to injury to the liver, the administration of vitamin K may be wholly ineffective. These investigators used dogs in which liver damage had been produced by chronic chloroform intoxication. In such dogs the administration of vitamin K fails to modify in any way either the fall in prothrombin with chloroform administration or the rise in prothrombin during the recovery period. Somewhat comparable to this observation is that of Andrus, Lord and Moore,² who have reported that the administration of vitamin K does not alter the typical decrease in the plasma prothrombin level that is observed in hepatectomized dogs. Prothrombin deficiency observed in the clinic may often be due to a combination of two factors, liver damage and a deficiency of vitamin K. In these cases the response to the administration of vitamin K may be incomplete; for, as pointed out by Brinkhous and Warner, it may correct the latter condition but an excess of vitamin cannot be expected to compensate for the element of liver injury. Lord, Andrus and Moore³ give accounts of clinical cases that did not respond satisfactorily to vitamin K therapy. In one case a post-mortem examination revealed massive hepatic necrosis and in another the liver was cirrhotic and much reduced in size. There seems to be little doubt that the condition of the liver is important in determining the response of the prothrombin level to vitamin K.

1. Brinkhous, K. M., and Warner, E. D.: The Effect of Vitamin K on Hypoprothrombinemia of Experimental Liver Injury, *Proc. Soc. Exper. Biol. & Med.* 44: 609 (June) 1940.
2. Andrus, W. D.; Lord, J. W. Jr., and Moore, R. A.: The Effect of Hepatectomy on the Plasma, Prothrombin and the Utilization of Vitamin K, *Surgery* 6: 899 (Dec.) 1939.
3. Lord, J. W., Jr.; Andrus, W. D., and Moore, R. A.: Metabolism of Vitamin K and Role of the Liver in Production of Prothrombin in Animals, *Arch. Surg.* 41: 585 (Sept.) 1940.

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

CONFERENCE ON PROBLEMS OF MEDICAL PREPAREDNESS

Meeting of the Committee on Medical Preparedness,
American Medical Association Building,
Chicago, February 15

Dr. JAMES E. PAULLIN, Atlanta, Ga., Presiding

The following, among other visitors were in attendance:

Dr. Arthur W. Booth, Elmira, N. Y.
Dr. Charles A. Dukes, Oakland, Calif.
Dr. Morris Fishhein, Editor, THE JOURNAL, Chicago.
Dr. Roy W. Fouts, Omaha.
Dr. Stanley H. Osborn, Hartford, Conn.
Dr. John O'Shea, Spokane, Wash.
Dr. Walter G. Phippen, Salem, Mass.
Dr. Fred W. Rankin, Lexington, Ky.
Dr. Harvey B. Stone, Baltimore.
Dr. Sam E. Thompson, Kerrville, Texas.
Dr. Nathan B. Van Etten, New York.
Dr. Olin West, Secretary and General Manager, American Medical Association, Chicago.
Capt. Dallas G. Sutton, Naval Medical Center, Washington, D. C.
Dr. Warren F. Draper, U. S. Public Health Service, Washington, D. C.
Dr. J. A. Crahtree, U. S. Public Health Service, Washington, D. C.
Dr. C. Sidney Burwell, Chairman, Medical Education Committee, Boston.
Lieut.-Col. G. C. Dunham, U. S. Army, Washington, D. C.
Dr. Willard C. Rappleye, New York.
Dr. Harold S. Diehl, Minneapolis.
Dr. John H. Musser, New Orleans.
Lieut.-Col. W. C. Munly, U. S. Army, Washington, D. C.
Dr. E. H. Cushing, National Research Council, Washington, D. C.
Dr. Reginald Fitz, Boston.
Dr. H. G. Weiskotten, Syracuse, N. Y.
Dr. Emmet B. Bay, Chicago.
Dr. Walter Bierring, Des Moines, Iowa.
Dr. John W. Spies, dean, Texas University School of Medicine, Galveston.
Dr. Ray Lyman Wilbur, Council on Medical Education and Hospitals, Stanford University, Calif.
Lieut.-Col. Charles G. Hutter, Chicago.
Dr. Norman M. Scott, Trenton, N. J.
Dr. F. H. Arestad, American Medical Association, Chicago.
Dr. A. R. Bowles, Council on Medical Education and Hospitals, Chicago.
Dr. William D. Cutter, Council on Medical Education and Hospitals, Chicago.
Mr. Harvey T. Sethman, Denver.
Dr. R. G. Leland, American Medical Association, Chicago.
Dr. Charles G. Heyd, New York.

Chairman Paulin introduced members of the Committee on Medical Preparedness, representatives of the Army, the Navy and the United States Public Health Service, members of the Subcommittee on Education of the Health and Medical Committee, and members of the Council on Medical Education and Hospitals of the American Medical Association.

Dr. Olin West presented a confidential communication from the British Medical Association, which was given consideration.

Dr. E. H. Cushing said that it had been arranged in England that all official requests for medical supplies and personnel are to be routed through one Red Cross to another Red Cross. The American Red Cross is using the National Research Council in an advisory capacity.

PLANS FOR PROCUREMENT OF PERSONNEL

Dr. Olin West submitted the communication from the Adjutant General's Office, War Department, covering the assistance of the American Medical Association in the classification and procurement of physicians for military service (see Medical Preparedness, THE JOURNAL, February 22, p. 709).

It was brought out that physicians are not now commissioned above the grade of lieutenant, except for those in the organized units who are to be called into service only in case of war. At present no doctor is commissioned in the Medical Reserve Corps over the age of 35.

The conference discussed the problem of securing for physicians commissions of a rank commensurate with the positions they occupy and the services they render. Consideration was given also to the utilization of the services of physicians whose physical condition may be such as to make them unable to qualify under the regulations but who yet may be capable of giving excellent service as physicians.

Dr. Sam Thompson presented a plan for the procurement of medical personnel, which was referred to the Surgeon General's Office for consideration.

SUPPLY AND DEFERMENT OF MEDICAL STUDENTS

Dr. Olin West presented a communication from Mr. Clarence Dykstra, director of Selective Service. Dr. Sidney Burwell reported the recommendations made by the Subcommittee of the Committee on Health and Medical Education. After extended discussion a special committee was appointed to draw up a communication for transmission to the Selective Service Board (see editorial THE JOURNAL, February 22, p. 706).

Dr. Weiskotten said he did not believe there is a medical school in the country which should increase the size of its student body or that would be in a position to maintain what we consider adequate standards if they should materially increase the size of the student body.

AVAILABLE MEDICAL PERSONNEL

It was brought out that at present there are 13,861 medical reserve officers. Of this number 3,556 were on active duty as of February 14. There are approximately 8,000 vacancies in the Medical Reserve Corps to meet the demands of our present procurement objective of 20,000. On the basis of 6.5 medical officers per thousand men, 9,100 medical officers will be needed yearly for the present training program, which will continue for a five year period. With the rapid expansion of the Air Corps, more than 9,100 may be needed. Of the 9,100 there are 1,230 in the medical corps of the regular army and 1,100 in the National Guard, so that 7,000 to 8,000 medical reserve officers will be needed yearly for five years. It is estimated that of the 5,200 graduates yearly not more than 3,000 will be available for the armed forces, with deferments due to dependence, physical disqualifications and other factors.

Authority has been given for the formation of sixty general hospitals, thirty evacuation hospitals and twenty-three surgical hospitals or sponsored units. Thus far forty-seven general hospitals, eighteen evacuation hospitals and seven surgical hospitals have been organized.

It was brought out that there are on duty in the Navy 886 medical officers, 28 acting assistant surgeons, to which 34 have recently been added, 71 medical officers retired who have been recalled to active duty and 350 medical officers of the Naval Reserve on active duty, making a total of 1,335. All figures are based on a maximum of 500,000 personnel, of which some 400,000 are already on active duty. In the Naval Reserve there are at present 1,763 medical officers, or a shortage of 1,134. There are 300 applications pending.

MISCELLANEOUS

Consideration was given also to the problem of physicians with foreign licenses, selective service boards and difficulties of men already in service.

ARMY RESERVE OFFICERS ORDERED TO ACTIVE DUTY

WAR DEPARTMENT

The following additional medical reserve corps officers have been ordered to extended active duty by the War Department, Washington, D. C.:

BANICK, V. William, Captain, Scranton, Pa.
BARKER, Carl DeVaux, 1st Lieut., Paris, Texas.
BIRDSONG, William F., Captain, Texon, Texas.
BROWNTON, Sheldon Seymour, Captain, Clayton, Mo.
CASPERS, Carl Gerald, 1st Lieut., Minneapolis.
DEWIRE, Merrill Brown, Major, Reading, Pa.
DIAMOND, Oscar Kantor, 1st Lieut., Mount Vernon, N. Y.
FLYNN, Vincent Patrick, Captain, Pasadena, Calif.
FRIEDMAN, Eliot Marvin, 1st Lieut., New York.
GARVIN, Paul Drews, 1st Lieut., Boulder, Colo.
GILPIN, Burhl Bobbitt, Jr., 1st Lieut., Medford, Ore.
HERMANN, Robert C., 1st Lieut., Yoakum, Texas.
HILL, Thurman Knight, 1st Lieut., Nashville, Tenn.
JACOBSON, Seymour Shulman, 1st Lieut., Brooklyn.
KALIL, Charles, 1st Lieut., Spartanburg, S. C.
McGLONE, Frank Bartlett, 1st Lieut., Denver.
OSBORNE, Charles Dunlap, Lieut. Col., Sedalia, Mo.
PARNALL, Christopher, Jr., Captain, Rochester, N. Y.
RANDALL, Charles C., 1st Lieut., Iowa City.

ROGERS, Benjamin C., 1st Lieut., Nashville, Tenn.
ROHNER, Ralph George, 1st Lieut., Mitchell, Ind.
ROSENFELD, Julius L., 1st Lieut., New York.
ROSENFELD, Robert Thorman, 1st Lieut., Chicago.
RUSSIN, Lester Allen, 1st Lieut., Iowa City.
TANZ, Stanley Stuart, 1st Lieut., New Rochelle, N. Y.
THORNTON, John Thurston, Jr., 1st Lieut., Wbceling, W. Va.
VAN KINSBERGEN, Maurice, Captain, Washington, D. C.
VOSS, Bernard Jerome, 1st Lieut., Columbia, Utah.
WILSON, Joseph Crawford, 1st Lieut., Hollandale, Miss.

Order Revoked

McCAULEY, Lewis Ross, 1st Lieut., Punxsutawney, Pa.

CORRECTION

Lieutenants Byars.—In THE JOURNAL, Nov. 30, 1940, page 1892, the name Blars, Perry J. C., 1st Lieut., Lampasas, Texas, should have been spelled Byars, and the next name in the list should have been Byars, Stevens, 1st Lieut., Spring Creek, Texas.

FIRST CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, First Corps Area. The First Corps Area comprises the states of Maine, Vermont, New Hampshire, Rhode Island, Massachusetts and Connecticut.

ARCIERO, Michael, Lieut., Providence, R. I., Fort Benning, Ga.
BARNES, Louis D., Major, Lanesboro, Mass., Carlisle Barracks, Pa.
BRADY, Charles E., Lieut., Barret, Vt., Camp Lee, Va.
BRISLIN, William W., Lieut., Alstead, N. H., Camp Lee, Va.
CROSS, Merrill M., Lieut., Clinton, Mass., Army Medical Center, Washington, D. C.
CUTLER, Joseph G., Lieut., Salem, Mass., Camp Lee, Va.
DAMIANI, Clito R., Lieut., Newtonville, Mass., Camp Edwards, Mass.
EBBETT, George H., Lieut., Houlton, Maine, Fort Benning, Ga.
EDSON, Ralph H., Lieut., Shelton, Conn., Fort Benning, Ga.
FLYNN, Timothy P., Lieut., Lancaster, N. H., Fort Benning, Ga.
HUNTRESS, William W., Lieut., Fall River, Mass., Army Medical Center, Washington, D. C.
LA POINTE, Roland E., Lieut., Manchester, N. H., Fort Williams, Maine.
LARSON, Carroll B., Lieut., Brookline, Mass., Fort Benning, Ga.

LO VETERE, Angelo A., Captain, Kensington, Conn., Camp Lee, Va.
MURPHY, Theodore P., Lieut., Montpelier, Vt., Camp Lee, Va.
QUIGLEY, Thomas J., Lieut., Boston, Camp Edwards, Mass.
SULLIVAN, Arthur B., Lieut., West Hartford, Conn., Camp Edwards, Mass.
WARD, John V., Captain, Portland, Maine, Camp Lee, Va.
ZONDERMAN, Bernard, Lieut., Revere, Mass., Fort Banks, Mass.

Orders Revoked

The following medical reserve officers have had their orders revoked:

BEEAKER, Vincent H., Lieut., Lewiston, Maine.
CALCAGNI, Oscar H., Lieut., Morrisville, Vt.
CARROLL, Francis B., Lieut., Great Barrington, Mass.
CRISCUOLO, Joseph A., Lieut., New Haven, Conn.
FULLER, Richard C., Lieut., Saxtons River, Vt.
GORMAN, Richard J., Lieut., Winchendon, Mass.
HADLER, Arthur J., Lieut., Boston.
LARSON, Carroll B., Lieut., Brookline, Mass.
LUCKNER, Wendelin G., Lieut., Stafford Springs, Conn.
NEWTON, AARON W., Lieut., Greenfield, Mass.
WHELAN, Edmund L., Lieut., East Boston, Mass.

THIRD CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Third Corps Area. The Third Corps Area comprises the states of Pennsylvania, Virginia, District of Columbia and Maryland.

BAKER, Harold Frederick, Lieut. Col., Muncy, Pa., Army Medical Center, Washington, D. C.
BAUERSFELD, Emil Herbert, 1st Lieut., Washington, D. C., Fort Belvoir, Va.
BENZ, George Henry, 1st Lieut., Pittsburgh, Fort Eustis, Va.
BLANK, Philip, 1st Lieut., Pittsburgh, Fort Eustis, Va.
BRANDT, Charles Richard, Captain, Mechanicsburg, Pa., Medical Field Service School, Carlisle Barracks, Pa.
BUTLER, Henry Lee, 1st Lieut., Baltimore, Indiantown Gap, Pa.
CAMPBELL, Edgar Thrall, 1st Lieut., Hagerstown, Md., Fort Eustis, Va.
CHAPMAN, William Holmes, Jr., Captain, Suffolk, Va., Fort Eustis, Va.
CLOSE, Henry Fletcher, 1st Lieut., Germantown, Pa., Indiantown Gap, Pa.
COHEN, Hilliard, 1st Lieut., Baltimore, Fort Monroe, Va.
CURD, Howard Harman, 1st Lieut., University, Va., Fort George G. Meade, Md.
DAWE, George Griffith, Captain, Millintown, Pa., Fort Belvoir, Va.
DILCHER, Robert Horn, 1st Lieut., Allentown, Pa., Indiantown Gap, Pa.
DOLLMAN, Clarence Mazarin, Lieut. Col., Washington, D. C., Fitzsimons General Hospital, Denver.
DOUGLAS, Harry Samuel, 1st Lieut., Washington, D. C., Camp Lee, Va.
EGBERT, Ernest Wayne, 1st Lieut., Chester, Pa., Fort George G. Meade, Md.
FAW, Wylie Melvin, Jr., 1st Lieut., Cambridge, Md., Fort Story, Va.
GILARDI, Robert John, 1st Lieut., Pittsburgh, Camp Shelby, Miss.
GOLDBERG, Harold Ernest, 1st Lieut., Philadelphia, Fort McClellan, Ala.
GRANA, Philip Charles, 1st Lieut., Harrisburg, Pa., Indiantown Gap, Pa.
GRAY, Raymond John, Captain, Pittsburgh, Fort Eustis, Va.
HARNISH, Robert Livingstone, 1st Lieut., Denver, Pa., Fort Belvoir, Va.
HARRIS, Harold Byron, 1st Lieut., Bellefonte, Pa., Fort Eustis, Va.

HECKER, Arthur Orr, Captain, Harrisburg, Pa., Indiantown Gap, Pa.
HERR, Paul Sylvester, Captain, Harrisburg, Harrisburg, Pa.
HINDMAN, Thomas Audley Newcomer, 1st Lieut., Burgettstown, Pa., Fort Monroe, Va.
HOCH, Vincent Adolphus, 1st Lieut., Butler, Pa., Fort George G. Meade, Md.
ILYAS, Shakir Thomas, 1st Lieut., Rural Valley, Pa., Fort Eustis, Va.
IRVING, Richard Henson, 1st Lieut., Washington, D. C., Camp Devens, Mass.
JACKSON, Richard Lee, 1st Lieut., Arlington, Va., Fort Meade, Md.
JACOBSON, Robert Morris, 1st Lieut., Punxsutawney, Pa., Fort Belvoir, Va.
JEFFREY, Millard, 1st Lieut., Washington, D. C., Fort George G. Meade, Md.
KAPO, Peter Joseph, Major, Mahanoy City, Pa., Camp Lee, Va.
KILLIUS, William Joseph, 1st Lieut., Johnstown, Pa., Fort Monroe, Va.
KITCHEL, James Roderick, 1st Lieut., Philadelphia, Indiantown Gap, Pa.
KRAUSE, Edward Ab, Major, Washington, D. C., Fort Story, Va.
KREIGER, Alexander Allen, 1st Lieut., Pittsburgh, Indiantown Gap, Pa.
LECHAUSSE, Ralph Maurice, 1st Lieut., Pardee, Va., Fort Eustis, Va.
LIVINGOOD, Clarence Svineheart, 1st Lieut., Philadelphia, Indiantown Gap, Pa.
LUPO, Deonis Matteo, 1st Lieut., Baltimore, Fort Eustis, Va.
MAGNESS, Stephen Lee, 1st Lieut., Catonsville, Md., Fort George G. Meade, Md.
MAHER, Regis Martin, 1st Lieut., Uniontown, Pa., Camp Lee, Va.
MARLEY, Ralph, 1st Lieut., New Castle, Pa., Indiantown Gap, Pa.
MARTIN, George Vincent, Jr., Captain, Washington, D. C., Indiantown Gap, Pa.
McELROY, Walton Dixon, 1st Lieut., McKeesport, Pa., Fort George G. Meade, Md.
MILLER, Kenneth Frederick, Major, West View, Pa., Washington, D. C.
MOYER, Donald Groesch, Major, Wyomissing, Pa., Fort Monroe, Va.
MUSSO, Charles Marion, Jr., 1st Lieut., Washington, D. C., Fort George G. Meade, Md.
OLAH, George William, 1st Lieut., Pittsburgh, Camp Lee, Va.
PEPPER, Dickinson Sergeant, 1st Lieut., Bala-Cynwyd, Pa., Indiantown Gap, Pa.
PHILLIPS, Joseph Thomas, Jr., 1st Lieut., Norfolk, Va., Fort Eustis, Va.

RABOLD, Bernard Louis, 1st Lieut., Baltimore, Fort Eustis, Va.
REHER, Charles August, Jr., Captain, Clinton, Pa., Fort Monroe, Va.
REIZMAN, Ivy Albert, Major, Washington, D. C., Fort Belvoir, Va.
RIESTER, Herman William, 1st Lieut., Erie, Pa., Indiantown Gap, Pa.
ROSENBLOOM, Meyer Abraham, 1st Lieut., Pittsburgh, Fort Monroe, Va.
ROSENFELD, David Herman, 1st Lieut., Richmond, Va., Camp Lee, Va.
SAYLOR, Clyde Llewellyn, 1st Lieut., Meyersdale, Pa., Camp Lee, Va.
SCHAEFER, William Carl, 1st Lieut., Pittsburgh, Camp Lee, Va.
SHAULIS, Frederick Steinrod, 1st Lieut., Indiana, Pa., Fort Eustis, Va.
SCHWAB, Carl Leopold, 1st Lieut., Harrisburg, Pa., Indiantown Gap, Pa.
SCHWARTZMAN, Joel Jay, 1st Lieut., Philadelphia, Camp Lee, Va.
SCOTT, James Vickers, 1st Lieut., Pittsburgh, Fort Belvoir, Va.
SHOVLIN, John Patrick, 1st Lieut., Waymart, Pa., Fort Meade, Md.
SIMPSON, Robert Chester, Captain, Ridgway, Pa., Edgewood Arsenal, Md.
SLOANE, Milton Bennet, 1st Lieut., Pittsburgh, Fort Bragg, N. C.

FOURTH CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Fourth Corps Area. The Fourth Corps Area comprises the states of Tennessee, North Carolina, South Carolina, Alabama, Georgia, Mississippi, Florida and Louisiana.

BREWER, Frederic W., 1st Lieut., Port Sulphur, La., Camp Lee, Va.
BROWN, Ralph E., 1st Lieut., Barnwell, S. C., Fort McPherson, Ga.
CHRISTIAN, Robert H., 1st Lieut., Baldwin, Miss., Fort Benning, Ga.
COHEN, Emanuel, 1st Lieut., Pace, Miss., Camp Lee, Va.
COLEMAN, James A., Major, Jena, La., Camp Blanding, Fla.
FOGEL, Julius M., 1st Lieut., Fort Benning, Ga., Fort Benning, Ga.
FOX, Edward F., 1st Lieut., Miami, Fla., Camp Forrest, Tenn.
GREEN, Edgar V., 1st Lieut., Youngsville, N. C., Fort Bragg, N. C.
JEANES, Robert P., 1st Lieut., Easley, S. C., Camp Forrest, Tenn.
KING, James M., 1st Lieut., Tullahoma, Tenn., Camp Grant, Ill.

FIFTH CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Fifth Corps Area. The Fifth Corps Area comprises the states of Ohio, West Virginia, Indiana and Kentucky.

BAKER, Philip H., 1st Lieut., Columbus, Ohio, Fort Knox, Ky.
BRADSHAW, Wilber V., Captain, Stanford, Ky., Fort Knox, Ky.
DANCHIK, Sol A., 1st Lieut., Columbus, Ohio, Fort Knox, Ky.
DREY, James C., 1st Lieut., Louisville, Ky., Fort Knox, Ky.

SEVENTH CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Seventh Corps Area, which comprises the states of North Dakota, South Dakota, Minnesota, Nebraska, Iowa, Kansas, Missouri, Arkansas and Wyoming.

MOTHERSHEAD, John Lee, 1st Lieut., St. Louis, Jefferson Barracks, Mo.

Orders Revoked

HURLINGAME, David Albert, 1st Lieut., Minneapolis, William Beaumont General Hospital, El Paso, Texas.
DE YOUNG, George Marion, 1st Lieut., George, Iowa, Camp Murray, Wash.
GRIMES, Henry Burton, Major, Madelia, Minn., Fort Ord, Presidio of Monterey, Calif.

EIGHTH CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Eighth Corps Area, which comprises the states of Colorado, Arizona, New Mexico, Oklahoma and Texas.

AISENSTADT, E. Albert, Lieut. Col., Picher, Okla., Station Hospital, Fort Sill, Okla.
BRADLEY, Frank L., 1st Lieut., Tahleah, Okla., Station Hospital, Fort Sam Houston, Texas.
BRIDGES, James Payne, 1st Lieut., New York, Station Hospital, Fort Sam Houston, Texas.
COOKERLY, Van, Lieut. Col., Dallas, Texas, Station Hospital, Fort Sill, Okla.
DORNAK, Franklin K., Captain, Houston, Texas, 82d Field Artillery, Fort Bliss, Texas.
HODGES, Tom Wiley, 1st Lieut., Boston, Station Hospital, Fort Sam Houston, Texas.
HYDE, Theodore L., Captain, Wichita Falls, Texas, Fort Bliss, Texas.
JERNSTAD, Robert J., 1st Lieut., Fort Worth, Texas, Station Hospital, Fort Sam Houston, Texas.
MOSSBERGER, Joseph I., 1st Lieut., Denver, Station Hospital, Camp Wallace, Texas.

STUTZMAN, Clyde Malverne, Jr., 1st Lieut., South Williamsport, Pa., Camp Lee, Va.
THOMPSON, John Edward, 1st Lieut., Youngsville, Pa., Fort George G. Meade, Md.
VERMILYA, Walter Emerson, 1st Lieut., Clifton Forge, Va., Camp Lee, Va.
VERNOCY, William Charles, 1st Lieut., Coraopolis, Pa., Camp Lee, Va.
WAGNER, Ira Garfield, Captain, Lancaster, Pa., Fort George G. Meade, Md.
WAGNER, Philip Sigmund, 1st Lieut., Baltimore, Fort Belvoir, Va.
WALMER, Charles Richard, 1st Lieut., Wilkinsburg, Pa., Camp Lee, Va.
WATKINS, Evan Lloyd, 1st Lieut., Philadelphia, Camp Shelby, Miss.
WATTS, Thomas Duvall, Captain, Richmond, Va., Fort Meade, Md.
WEAVER, Thomas David Littler, 1st Lieut., Bellevue, Pa., Fort Eustis, Va.

MAYER, Orlando B., Captain, Columbia, S. C., Camp Forrest, Tenn.
MOORHEAD, Robert J., 1st Lieut., Yazoo City, Miss., Camp Lee, Va.
MOULEDOUS, Shelly J., 1st Lieut., Abbeville, La., Camp Lee, Va.
PREJEAN, James L., 1st Lieut., Sunset, La., Camp Lee, Va.
SAPP, James W., 1st Lieut., Havana, Fla., Fort Benning, Ga.
SCOTT, William S., 1st Lieut., Jonesville, S. C., Camp Grant, Ill.
STECHEER, Joseph L., 1st Lieut., Orlando, Fla., Camp Grant, Ill.
WARD, Francis O., 1st Lieut., Macon, Ga., Camp Wheeler, Ga.
WILSON, James S., 1st Lieut., Kenansville, N. C., Fort Bragg, N. C.

Orders Revoked

BRANDON, Robert W., Jr., 1st Lieut., Martin, Tenn.
DUCKWALL, Fred M., 1st Lieut., Kingsport, Tenn.
JORDAN, Henry C., Captain, Robertsdale, Ala.
MILLING, Chapman J., 1st Lieut., Columbia, S. C.
SNELLING, William R., 1st Lieut., Fernandina, Fla.
SYKES, Charlie L., 1st Lieut., Pilot Mountain, N. C.
WHITMAN, Oscar F., 1st Lieut., Statesboro, Ga.

FRYE, Carl M., Captain, Newark, Ohio, Fort Knox, Ky.
MILLER, Alfred O., 1st Lieut., Louisville, Ky., Fort Knox, Ky.
PERRY, Claude S., Major, Columbus, Ohio.
PETRO, George J., 1st Lieut., Louisville, Ky., Fort Knox, Ky.
PHARR, Percy F., 1st Lieut., Charleston, W. Va., Fort Knox, Ky.
PILLERSDORF, Louis, 1st Lieut., Cleveland.
PIRKEY, Everett L., 1st Lieut., Louisville, Ky., Fort Knox, Ky.
ROHRER, James R., Captain, Fort Knox, Ky.
SMITH, Earl E., Captain, Cleveland, Fort Knox, Ky.
SONNE, Irvin H., Major, Louisville, Ky.
WILLETT, Irving, Major, Fort Wayne, Ind.

HAMILTON, Benjamin Charles, Major, Jefferson, Iowa, Camp Murray, Wash.
HAYMOND, Harold Everest, Captain, Perry, Iowa, Fort Meade, S. D.
ROBERTS, John Richard, 1st Lieut., Brentwood, Mo., William Beaumont General Hospital, El Paso, Texas.
ROSENFELD, Abraham Benjamin, Captain, Hibbing, Minn., Army and Navy General Hospital, Hot Springs, Ark.
SAGI, Joseph Herman, 1st Lieut., Minneapolis, Fort Lewis, Wash.

CORRECTION

Lieutenant Hudgel.—First Lieut. Lawrence Eugene Hudgel, of North Platte, Neb., whose name was listed among the orders revoked in THE JOURNAL, February 15, page 600, writes that he had received two different orders and that it was only one of these which was revoked. Lieutenant Hudgel is still in active service and at present is serving at the Medical Replacement Center, Camp Grant, Ill.

OXMAN, Albert C., 1st Lieut., Denver, Station Hospital, Fort Sam Houston, Texas.
PROSSER, Moorman P., 1st Lieut., Norman, Okla., Station Hospital, Fort Sill, Okla.
ROBERTS, Aaron L., Lieut. Col., Fort Worth, Texas, Station Hospital, Fort Sill, Okla.
SECRETST, Pettus G., Jr., 1st Lieut., Boston, Station Hospital, Camp Bowie, Brownwood, Texas.
STRADER, Simon E., Lieut. Col., Oklahoma City, Station Hospital, Fort Sam Houston, Texas.
WADE, David Chapel, 1st Lieut., Galveston, Texas, Station Hospital, Fort Sam Houston, Texas.
WEISS, Joseph H., 1st Lieut., Denver, Station Hospital, Fort Sam Houston, Texas.
WHEELER, Norman O., 1st Lieut., Globe, Ariz., Station Hospital, Camp Barkley, Abilene, Texas.

Orders Revoked

HANNA, William Ray, 1st Lieut., Ladonia, Texas.
HESTAND, Haskell E., 1st Lieut., Odessa, Texas.
McMILLAN, George S., 1st Lieut., Hurley, N. M.
TRIPPET, Horace H., 1st Lieut., Waco, Texas.
WOODS, Haddon Benjamin, Captain, Refugee, Texas.

NINTH CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Ninth Corps Area, which comprises the states of Washington, Montana, Oregon, Nevada, Utah, California and Idaho.

BELL, Ralph M., 1st Lieut., Santa Maria, Calif., Antiaircraft Firing Center, Riverside, Calif.
BERKE, Samuel D., 1st Lieut., Indio, Calif., Camp Roberts, Nacimient, Calif.
CASH, George C., 1st Lieut., Burns, Ore., Fort Lewis, Wash.
FIELDS, Irving A., 1st Lieut., Los Angeles, Camp San Luis Obispo, Calif.

GEEN, Robert S., Captain, Hollister, Calif., Camp Roberts, Nacimient, Calif.
GLICKMAN, Milton, 1st Lieut., Los Angeles, Camp Haan, Riverside, Calif.
HENNING, Berthel H., Major, San Francisco, Camp Haan, Riverside, Calif.
LARRABEE, James F., 1st Lieut., Santa Clara, Calif., Nacimient, Calif.
MAYTUM, Harry R., 1st Lieut., Merced, Calif., Fort McDowell, Calif.
MORRIS, George W., 1st Lieut., San Diego, Calif., Fort Ord, Calif.
SOLL, Sidney N., 1st Lieut., Los Angeles, Camp Roberts, Nacimient, Calif.

Orders Revoked

HEATH, Richard S., 1st Lieut., Los Angeles.
LANDERS, Clyde H., 1st Lieut., Altadena, Calif.
NASH, Frank P., 1st Lieut., Townsend, Mont.

NAVAL RESERVE OFFICERS ON ACTIVE DUTY

The following medical officers of the U. S. Naval Reserve have reported for active duty since February 5:

ADAMS, Frank A., Lieut. (j. g.), M. C.-V. (G.), Bentleyville, Pa., Fleet Marine Force, San Diego, Calif.
ADAMS, Walter P., Lieut., M. C.-V. (S.), Norfolk, Va., Norfolk Naval Hospital, Portsmouth, Va.
ALLISON, Stanton T., Lieut. Comdr., M. C.-V. (S.), New York, Naval Hospital, Brooklyn.
ALVIS, Harry J., Lieut. (j. g.), M. C.-V. (G.), Chicago, Fleet Marine Force, San Diego, Calif.
BENNETT, Everett E., Lieut. (j. g.), M. C.-V. (G.), Los Angeles, Fleet Marine Force, San Diego, Calif.
BILLION, Thomas J., Jr., Lieut. (j. g.), M. C.-V. (G.), Sioux Falls, S. D., Fleet Marine Force, San Diego, Calif.
BRADFORD, Fred E., Lieut. (j. g.), M. C.-V. (G.), Loma Linda, Calif., Fleet Marine Force, San Diego, Calif.
CHESBRO, Wayne P., Lieut. (j. g.), M. C.-V. (G.), Gilroy, Calif., 2d Marine Brigade, Fleet Marine Force, San Diego, Calif.
GARREY, Walter E., Lieut., M. C.-V. (S.), Boston, Naval Hospital, Chelsea, Mass.
GILMAN, Philip K., Jr., Lieut. (j. g.), M. C.-V. (G.), Watsonville, Calif., 2d Marine Brigade, Fleet Marine Force, San Diego, Calif.
GLEYSTEN, Rodney R., Lieut. (j. g.), M. C.-V. (G.), Alton, Iowa, 2d Marine Brigade, Fleet Marine Force, San Diego, Calif.
GRATZ, Charles M., M. C.-V. (S.), New York, Naval Hospital, Brooklyn.

HAHNE, Leonard J., Lieut. (j. g.), M. C.-V. (G.), Savannah, Ga., Marine Recruiting Station, Savannah, Ga.
HANKINS, Franklyn D., Lieut. M. C.-V. (G.), Loveland, Colo., Fleet Marine Force, San Diego, Calif.
HYNES, Edward A., Lieut., M. C.-V. (S.), South Portland, Maine, Naval Hospital, Chelsea, Mass.
JWERTSEN, Frank J., Lieut. (j. g.), M. C.-V. (G.), Omaha, Fleet Marine Force, San Diego, Calif.
KAHN, Bernard I., Lieut. (j. g.), M. C.-V. (G.), Ardmore, Okla., Aviation Base Group, Fleet Marine Force, San Diego, Calif.
LANE, Charles W., Lieut. Comdr., M. C.-V. (G.), Coronado, Calif., Naval Air Station, San Diego, Calif.
LIDE, Charles M., Lieut. (j. g.), M. C.-V. (G.), Columbia, S. C., Naval Hospital, Parris Island, S. C.
PENDERGRASS, Clayton I., Lieut. (j. g.), M. C.-V. (G.), Clovis, Calif., Fleet Marine Force, San Diego, Calif.
PERSON, Edward C., Lieut. (j. g.), M. C.-V. (G.), Wauneta, Neb., Fleet Marine Force, San Diego, Calif.
POPPEN, Mayo, Jr., Lieut. (j. g.), M. C.-V. (G.), Burr Oak, Kan., Fleet Marine Force, San Diego, Calif.
POWELL, Archie C., Lieut. (j. g.), M. C.-V. (G.), Omaha, Fleet Marine Force, San Diego, Calif.
SERRANO, Ernest E., Lieut. (j. g.), M. C.-V. (G.), Tampa, Fla., Marine Barracks, Quantico, Va.
SIMON, Julius, Lieut. (j. g.), M. C.-V. (G.), Los Angeles, Fleet Marine Force, San Diego, Calif.
STEIN, Ephraim, Lieut. (j. g.), M. C.-V. (G.), Brooklyn, Marine Barracks, Quantico, Va.
WOOD, Dennistoun, Jr., Lieut. (j. g.), M. C.-V. (G.), Palo Alto, Calif., Fleet Marine Force, San Diego, Calif.

NURSES APPOINTED FOR OVERSEAS SERVICE

Thirty-two nurses were named, January 25, by the American Red Cross to form the first contingent of a staff of 65 which will serve with the Harvard University hospital unit now being established in England by Dr. John E. Gordon, professor of preventive medicine and epidemiology at Harvard Medical School, Boston. Miss Mary Beard, national director of the Red Cross nursing service, who made the appointments, said that applications would be received from other nurses under 35 years of age who have graduate certificates and have had experience or training in the care of patients with communicable diseases.

WOMEN'S MEDICAL ASSOCIATION SENDS FUNDS TO ENGLAND

The American Women's Hospitals, which is the medical service committee of the American Medical Women's Association, has for the past eight months sent \$1,000 a month to England for use wherever it is most needed, the New York Times reported January 26. An extra \$1,000 was sent during the holidays through special Christmas donations. Distribution of the funds is handled by the Medical Women's Federation of Great Britain under the direction of Dame Janet Campbell, honorary secretary of the federation. Dr. Esther Clayson Pohl Lovejoy, New York, is director of the medical services and is assisted by the following committee: Drs. Helen I. Walbridge, Harriet F. Coffin and Inez A. Bentley, New York; Mabel M. Akin, Portland, Ore.; Louise Tayler Jones, McLean, Va.; Catherine Macfarlane, Philadelphia; Luvia M. Willard, Jamaica, N. Y.; Elizabeth Mason Hohl, Los Angeles, and Mathilda K. Wallin, Elmsford, N. Y. The committee is continuing its service in Greece, which has been functioning since

1917. Dr. Ruth A. Parmelee, Athens, in charge of the work there, has recently been made the only woman member of the administrative board of the Greek War Relief Committee.

GRADUATES OF FOREIGN MEDICAL SCHOOLS ELIGIBLE FOR COMMISSION IN MEDICAL DEPARTMENT RESERVE

The Adjutant General of the U. S. Army, Major General E. S. Adams, has issued regulations concerning the appointment of graduates of foreign medical schools in the medical department reserve. Graduates of foreign medical schools are considered eligible for appointment in the Medical Corps Reserve provided they meet the following requirements:

(a) Are citizens of the United States and can present satisfactory evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association.

(b) Have completed a medical course of at least four academic years.

(c) Have a license to practice medicine in the country in which their medical school is located.

(d) Have completed not less than one year's internship in a hospital acceptable to the Council on Medical Education and the Committee on Hospitals of the American Medical Association.

(e) Are eligible to take the examination given by the National Board of Medical Examiners.

(f) Have a license to practice medicine in the United States.

All applications for such commissions must be referred to the Surgeon General of the Army for approval.

ORGANIZATION SECTION

AMERICAN MEDICAL ASSOCIATION ON TRIAL

THE TRIAL OF THE CASE OF THE UNITED STATES OF AMERICA
VS.

THE AMERICAN MEDICAL ASSOCIATION, A CORPORATION, THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, A CORPORATION, THE HARRIS COUNTY MEDICAL SOCIETY, AN ASSOCIATION, THE WASHINGTON ACADEMY OF SURGEONS, AN ASSOCIATION, ARTHUR CARLISLE CHRISTIE, COURSEN BAXTER CONKLIN, JAMES BAYARD GREGG CUSTIS, WILLIAM DICK CUTTER, MORRIS FISHBEIN, THOMAS ALLEN GROOVER (DECEASED), ROBERT ARTHUR HOOE, ROSCO GENUNG LELAND, THOMAS ERNEST MATTINGLY, LEON ALPHONSE MARTEL, FRANCIS XAVIER MCGOVERN, THOMAS EDWIN NEILL, EDWARD HIRAM REEDE, WILLIAM MERCER SPRIGG, WILLIAM JOSEPH STANTON, JOHN OGLE WARFIELD JR., OLIN WEST, PRENTISS WILSON, WILLIAM CREIGHTON WOODWARD, WALLACE MASON YATER, JOSEPH ROGERS YOUNG.

(Continued from page 770)

WEDNESDAY, FEBRUARY 12

TESTIMONY OF WILLIAM FREDERICK PENNIMAN (Resumed)
CROSS EXAMINATION—(RESUMED)

By Mr. Leahy:

Q.—Mr. Penniman, I think yesterday afternoon we had just about finished relative to the conversation that you had with Dr. Neill in his office on that Saturday afternoon. Do you recall?

A.—Yes.

Q.—What was that young lady's name again, Mr. Penniman?

A.—Mary Frances Stuart.

Q.—Was she a member of G. H. A.?

A.—She isn't a member in the sense—she was connected with the G. H. A. as laboratory—in charge of the laboratory.

Q.—You knew, did you not, that the District Medical Society had a provision in the constitution with reference to the approval of contracts which any member of the Association had entered into with any group or industrial organization or what not?

A.—I have been so informed, yes.

Q.—You knew the terms of that, did you not, fairly well?

A.—Well, it had been presented to me I think by the chairman of that C. C. & I. M. Committee.

Q.—Was that Dr. Hooe?

A.—That's right.

Q.—And of course you knew somewhat about the District Medical Society, didn't you?

A.—Oh, yes.

Q.—Had you ever read its constitution and by-laws?

A.—No. I never did.

Q.—The only provision which you knew then in the by-laws was this one with reference to contracts needing approval?

A.—Yes. We had gotten it from various sources of course that these doctors could not be approved by the District Medical Society until they had approved Group Health Association.

Q.—Well, did you not think it was a question of approving the contract under which the doctors were to render services, that required approval?

A.—Well, I think we learned that subsequently, that they wanted to know if there was a definite contract that existed between the doctors and the Group Health Association.

Q.—Well, you knew it was that contract which the doctor who was a member of the Association was to render service under, that was the contract which required approval?

A.—That's right.

Q.—Did you ever submit that contract for approval to the District Medical Society?

A.—I didn't, but I think both Drs. Lee and Scandiffio did.

Q.—When?

A.—At the hearing.

Q.—Was there ever a written contract signed between Dr. Scandiffio and the Association, I mean, the Group Health, or Dr. Lee and the Group Health?

A.—I think there was a contract, sir, that was drawn up, and I think they signed it.

Q.—Are you sure of that?

A.—No, I am not sure. I know it was drawn up all right, and I know it was presented to the District Medical Society that night.

Q.—What night was that?

A.—It was either the first hearing or the second hearing.

Q.—Now, before you had entered into negotiations with Dr. Scandiffio and Dr. Lee, had you submitted the proposed contract to the District Medical Society for approval?

A.—Well, now, I would like to get that clear. I made no contract with either Dr. Lee or Dr. Scandiffio. That was something we left entirely to the Medical Director. He was the one who made the negotiations between these two.

Q.—But the Medical Director had no authority to employ doctors without the approval of the Board of Trustees, did he?

A.—He had authority to investigate their qualifications, and then present the terms to the Board.

Q.—And it was then the Board which employed the doctor, and not the Director?

A.—No. I think he presented the question of the salary that was to be paid to them and the Board, of course, had to consider that within its budget.

Q.—Let me ask you this, Mr. Penniman, did the Medical Director of Group Health Association have authority to employ a doctor without the approval of the Board of Trustees?

A.—He had the authority to employ them as to their qualifications but not as to the salary.

Q.—In other words, no doctor could work for G. H. A. until the Board of Trustees authorized that employment?

A.—The salary, yes.

Q.—Now, what the Medical Director did was make an investigation of the qualifications. Isn't that true?

A.—That's right.

Q.—Is that because you felt that a lay board could not investigate the professional qualifications of a doctor?

A.—I would think that is true, yes. They left that to the Medical Director.

Q.—Isn't that exactly what you and Dr. Neill were discussing that day when Dr. Neill said to you you could take the Supreme Court, all the courts, and the members of Congress, but they couldn't judge a doctor?

A.—I think so.

Q.—Meaning that lay people could not determine the qualifications of a doctor?

A.—That's right. There are a lot of new people coming to Washington that don't know the qualifications of a doctor here. How can they select a doctor, then?

Q.—Doctor, did you know that the Executive Committee of the District Medical Society was in doubt as to how to act in this matter of doctors working for the G. H. A.?

A.—That they were in doubt?

Q.—Yes.

A.—Oh, I think we had ample evidence of that, Mr. Leahy. You see, we had been working on this since January, and we had ample evidence that they were not cooperative.

Q.—What do you mean when you say not cooperative? Will you kindly restrain your answer to the question?

A.—The question you asked me was whether they were doubtful as to the operation.

Q.—No. What their conduct should be with reference to members of the Association whom you were seeking to employ.

A.—Well, I don't know as I could answer that just the way you want me to answer it.

Q.—I want the fact.

A.—I think the first doubt of doctors came to us from Dr. Glen R. Jones, as far back as March. We knew pretty well.

Q.—Let me refresh your recollection.

Mr. Lewin:—Let him finish his answer.

Mr. Leahy:—I think he has finished his answer.

By Mr. Leahy:

Q.—You have read over all those notes of that meeting that were there taken down? (indicating).

A.—I think so, sir.

Q.—Do you recall Dr. Macatee's talk to you at that meeting?

A.—Is this the hearing in the board room?

Q.—Yes. You have read that over, haven't you?

A.—No, I have not. I heard it that night. I meant the hearing at the District Medical Society.

Q.—You presided at the meeting, didn't you?

A.—I did, sir.

Q.—And in opening the meeting you had this to say, didn't you, that your committee was invited to appear before a group of the members of the Medical Society that they might learn more about the aims and objectives of this effort of yours in Group Hospitalization?

A.—Yes.

Q.—Then you said:

"We met with the committee that was selected and a good many questions were asked and a good many answers were given." You said that, didn't you?

A.—Yes.

Q.—

"We hope we gave the answer they wanted. We endeavored to do so. We had nothing to withhold. We put all the cards on the table and endeavored to answer every question that was asked us in which we felt they would receive any benefit."

Did you make that statement?

A.—I think so. That is the transcript of the meeting?

Q.—Yes. Did you put all the cards on the table?

A.—I think we did.

Q.—Put the contract on the table, too, did you, that we discussed yesterday?

A.—Which contract, with the Federal Home Loan Bank Board?

Q.—Yes.

A.—No, we didn't do that.

Q.—You had nothing to withhold but you withheld that contract, didn't you?

THE COURT:—He said he did.

By Mr. Leahy:

Q.—All right. Now, did Dr. Macatee say this, that he should like at the outset to express appreciation of the attendance of Mr. Penniman and the gentlemen of your organization at the Medical Society some time ago; and did he further express his appreciation at the full meeting of your Board of Trustees down there that evening?

A.—Does it say so in that? (indicating).

Q.—Yes.

A.—Yes. I think that is correct.

Q.—Now, on this question about the lack of cooperation which you just mentioned in your previous answer, did Dr. Macatee say this to the entire Board that night, your board meeting:

"I think I may say for the Medical Society that we are in sympathy with the proposition of spreading the costs of illness for individuals over a large group so that the disasters that come to family budgets may be avoided by that group protection. We feel that if some method could be devised by which there could be accomplished economically, and I use the word 'economically' in the sense of not only doing it within the means of people of moderate income but also from the view of keeping the project solvent, that if some such method could be worked out, it would have tremendous social value."

Did he say that?

A.—I think he did.

Q.—Is that right?

A.—I think so. I don't remember his words, but if it is in the transcript, I think that transcript is correct.

Q.—But you don't remember Dr. Macatee saying that the District Medical Society was in sympathy with its aims or objects which you presented as the aim and object of G. H. A.?

A.—I couldn't recall just exactly what he said, Mr. Leahy. He gave a very interesting talk for some thirty minutes. I couldn't remember the details, but I think the transcript there is correctly taken, and if it is in that, I think he said that.

Q.—Just a moment. Didn't you know, then, as early as June when you met the Medical Society's Board, that the Medical Society and you, as to the objectives which you both were seeking, were in harmony and in sympathy?

A.—Well, the objective was there, yes. The method wasn't entirely there.

Q.—Now, what was said, according to your recollection, which was developed at either one or two, or both of those meetings, which the Medical Society of the District of Columbia objected to, according to those who spoke for its Executive Committee, as to the method which you were pursuing?

A.—As I recall, the main objection that had been registered was the fact that these doctors were working on a contract, those that were getting a salary for their services.

That is one of the main objections. I think the proposals, as near as I can recall, were that they were willing to go along with us on some basis whereby we could have membership in an organization and let the doctors take care of the patients.

By Mr. Lewin:

Q.—Let what doctors?

A.—The local doctors, members of the Medical Society; and not have any salaried doctors on the staff at all.

By Mr. Leahy:

Q.—Now, was it the fact the doctors were working on a contract, on a salary, or was it the fact that the District Medical Society wanted to know what sort of a contract you wanted their members to work under?

A.—No, I think it was because they were working under a contract which they had a great deal of contention about, the doctors getting a salary.

Q.—Do you remember Mr. Macatee then saying this, after you opened this meeting in July:

"Now, Mr. Penniman's remarks, however, leave us somewhat in an embarrassing situation, for the reason that we are not yet in a position to know how we may cooperate helpfully to the organization."

Do you remember when he said that?

A.—I think he did.

Q.—Was he referring then to the fact that you had not submitted to him or to the Medical Society or to the Executive Committee any of the information which Dr. McGovern had asked, as late as July 15th, in his letter?

A.—I can only assume that that is what he was referring to, because in our meeting with the District Medical Society we discussed it very openly, and as I mentioned in my opening remarks, we laid our cards on the table and we withheld nothing so far as information was concerned with what we were attempting to do.

We answered their questions and we gave them our ideas.

Q.—Isn't it a fact that you, yourself, stated that you did not put all the cards on the table and that you did not answer all of the questions but you answered the questions which you felt they would receive any benefit from?

A.—Well, I don't know. We answered their questions. I don't think at the meeting we denied an answer to any question propounded by the doctors that we had the answer for.

Q.—Now, didn't Dr. Macatee also explain to you the reasons why the Executive Committee of the District of Columbia found itself in an embarrassing situation, and didn't he tell you there that "those reasons are bound up in a number of considerations which are very clear and familiar to us as medical men, growing out of the difficulty of finding acceptable contracts by which medical men might lend themselves to plans of this sort without incurring certain infractions of the principles of medical ethics by which we are bound"? Do you remember that statement?

A.—I think so.

Q.—Then did Dr. Macatee discuss with you the articles of incorporation, which you told him were on record, and which he could find?

A.—Yes.

Q.—And did he have anything to say to you there as to what the District Medical Society would like to do to help and cooperate with you but couldn't in the doubt in which they were with reference to the status of your organization?

A.—He may have, sir. I don't recall it.

Q.—Don't you remember what he said on that point?

A.—No, I can't remember.

Q.—See if I can refresh your recollection, Mr. Penniman.

A.—Good.

Q.—

"The first thing that occurs to us is this: that yours is a corporation which is intended to provide for the service of physicians, and other medical attendants, of any and all kinds of medical, surgical and hospital treatment to the members."

Do you remember that opening up the discussion?

A.—Yes. Was he quoting from the charter?

Q.—He was just giving his review of what he said the charter was.

A.—Well, then, he did have a copy of the charter.

Q.—In looking over your articles of incorporation, you had already told him where he could get it?

A.—And he had it.

Q.—"I find among the objects and purposes for which this corporation is formed are the following." Now, didn't he say this:

"One of the things we are quite uncertain about and would like to have information about, if you have it, is that in many of the states of the Union, the courts have found that a corporation cannot practice medicine, for the reason that a corporation cannot be licensed to practice medicine, and for that reason, although we realize that in the District of Columbia, that question has not arisen hitherto, and there have been no judicial decisions on it, such question might arise and the Medical Society would therefore be very uncertain what it could advise its members to do with respect to cooperation with such an organization."

"So far as the District of Columbia, therefore, on that ground at any rate, your organization is, in the words of Secretary Perkins, 'Its legality has not yet been determined.'"

Do you remember that?

A.—Yes.

Q.—So that at that time that was one of the reasons which Dr. Macatee said to you that he would like additional information on, the assistance of your organization, on the question of whether you were legally existing at that time?

A.—That's right. And that brings back to my mind the reasons, and from Dr. Macatee's statement there, that the Board of Trustees felt that their request for the charter and for the contract and the by-laws was not based on the desire to be in cooperation with us, but it was to get information to test the legality of Group Health Association.

Q.—Well, the articles of incorporation were of record, weren't they?

A.—Yes.

Q.—Has he said anything yet about by-laws?

A.—No. But you talked about it yesterday. You had them.

Q.—You said he had them.

By Mr. Leahy:

Q.—Did you ever supply Dr. Macatee with any information at all to satisfy his uncertainty with reference to how he should advise the members of the District Medical Society?

A.—Well, aren't we going back to the same question?

Q.—Same question, on the question of legality.

A.—I have already answered that he wanted the contract and the by-laws.

Q.—I am not asking you about the contract and the by-laws.

A.—What are you asking me about?

Q.—I am asking you now in the information he asked you as late as July 26th, could you give him any information so the members of the Society would be able to advise its members what to do?

A.—Would you read again what he asked for?

Q.—

"One of the things that we are quite uncertain about and we should like to have information about, if you have it, is that in many of the States of the Union, the courts have found that a corporation cannot practice medicine for the reason that a corporation cannot be licensed to practice medicine and for that reason, although we realize that in the District of Columbia that question has not arisen hitherto and there have been no judicial decisions upon it, such question might arise and the Medical Society would therefore be very uncertain what it could advise its members to do with respect to cooperation with such an organization. So far as the District of Columbia, therefore, on that ground at any rate, your organization is, in the words of Secretary Perkins, 'Its legality has not yet been determined.'"

Now, did you, as president of Group Health Association, extend to the District Medical Society, any information upon that question?

A.—On the legality?

Q.—Yes.

A.—No. There wasn't any question in our minds about it.

Q.—Well, did you answer the question, or did you in any way attempt to assist Dr. Macatee, to convince him that what you thought about it was right?

A.—Oh, I think so. I think we went into a great deal of detail about the operation of Stanocola and the Civic Medical in Chicago and the Ross-Loos in Los Angeles. I think we went into all those details very clearly.

Q.—I am not asking you about Civic Medical and Ross-Loos and Stanocola, I am asking you about your own organization Group Health. Did you supply any information on that point which had caused uncertainty in the minds of those gentlemen?

A.—That point had not arisen with us at all. We had no doubt at that time about it.

Q.—Now, then, did he discuss with you further another reason why they were uncertain about the matter?

"Now, then, one of the other, or at least not one of the others, but the principal difficulty that we are facing at the present time also is the knowledge that certain members of the Medical Society have already been approached with a view to serving your organization in a medical capacity, a professional capacity. There is in the Constitution of the Medical Society of the District of Columbia a provision which is mandatory upon all of the members of the Medical Society that contracts to render medical service must be approved by the appropriate committee of the Medical Society, taking into consideration the objects of the contract, the terms of the contract, and whether those terms and objects are in accord with the principles of medical ethics."

Do you remember his asking you about that?

A.—I do.

Q.—Does he say at any time in that meeting, to your knowledge, that he ever knew the terms or objects of the contract under which members of the Medical Society had been approached with a view to rendering professional services to your organization?

A.—No. I think he said a contract would be necessary to be submitted.

Q.—Now, then, they discussed—we won't go into that because it would take too much time—they discussed principles of medical ethics which Dr. Macatee brought to your mind specifically, did he not?

A.—Yes.

Q.—And those principles which he said caused him doubt; among which were

"solicitation of patients, directly or indirectly; where there is underbidding to secure a contract; when the compensation is inadequate to assure good medical service; when there is interference with reasonable competition in the community; when free choice of a physician is prevented; when the conditions of employment make it impossible to render adequate service to the patient; when the contract, because of any of its provisions or practices, results are contrary to sound public policy."

Did you all discuss those matters that night?

A.—I think we did.

Q.—And you knew that night, then, that the contract which they were asking to see was one which they would want to know met the requirements which I have just put to you?

A.—Yes.

Q.—Now, did he further bring to your attention:

"The other thing that has occurred to us is that seventh item in the criteria for the ethical character of a contract with a corporation, and that has to do with whether it is consistent with sound public policy. We conceive ourselves to be responsible in a measure for the welfare of the citizens of the jurisdiction in which we practice and we wonder whether the plan which has been so carefully worked out for your organization, whether it will actually perform for the members who join it, just the function that you design for it. We know in our contacts a good deal about human nature; we know how people when they have trivial illnesses most any doctor who is licensed and who can be found on the corner will do, but we also know that when serious illness, when complicated and difficult cases arise, and those are the cases which strike heavily upon the budgets of families, that nothing but the best will do."

Do you remember a discussion on that?

A.—Very well.

Q.—And do you remember his asking you what would happen if an epidemic broke out and how you would take care of your members?

A.—Yes.

Q.—And what provision would be made?

A.—Yes.

Q.—And did he ask you whether there were funds or surplus funds available to take care of that situation?

A.—Yes. What we would do generally in an epidemic.

Q.—Call on other doctors in the Medical Society. Is that right?

A.—The answer is in there.

Q.—Yes.

A.—If we got in a predicament of that kind we would certainly again solicit the aid of the members of the District Medical Society to help us.

Q.—Do you remember whether any other doctors spoke there that night further?

A.—Yes, I think Dr. Groover spoke.

Q.—And did Dr. Macatee ask if some of you gentlemen wouldn't talk to him there and discuss the things which he had said?

A.—I don't remember that.

Q.—Do you remember his saying:

"I wonder if some of the members of the committee have some questions to ask or suggestions to make for the benefit of this Board of Trustees. Some of the things I have said may need elaboration."

A.—He was speaking of his own committee.

Q.—"Do you think of anything I have omitted," as he turned to Dr. Groover.

Do you remember Dr. Groover talked?

A.—Yes. I remember the substance of it.

Q.—Do you remember the discussion was with reference to the aims and purposes of the organization as you had described them?

A.—I cannot say that I remember that in detail. I remember Dr. Groover there saying that wherever clinics of this type had been organized in foreign countries, in Cuba, Germany, and elsewhere, that there had been a depreciation in medical service and things of that kind. There was quite a lecture on that.

Q.—Do you remember Dr. Groover saying this:

"In the first place, before I say anything, let me make it plain that I have no personal interest in what this group does for the very simple reason that I have practiced medicine now some 40 (30) years and my days of practice are nearing an end in five years or six years, so it doesn't make any difference to me personally what you do or what you don't do."

A.—Right.

"To some extent, that is true to some of my colleagues who are with me. I think when we boil the whole thing down we will find that the fundamental thing that concerns the medical profession and actuates it to look askance at such developments as this, is the consideration as to the effect it may have on the quality of medical care, and I believe that the medical profession as a whole would be perfectly willing to waive almost any other consideration if they could be convinced that it would not tend to the deterioration of the quality of medical care. The medical profession generally believes that. Now, they may be wrong, but they are overwhelmingly of that opinion. It is difficult to convince a layman of that, I know, and perhaps to do so would be an almost futile undertaking. I will call your attention to just one thing that will give you something to think about: When I graduated in medicine in 1898, Germany was a leader in medical science, perhaps next would come France, next would come England, and somewhere way down at the bottom of the list, came the United States. We were backward. Well, now, it is at least significant that at about that time these social schemes began to be introduced into Germany first under Bismarck as a purely political movement, and later on they have spread. Now what has happened. This is not proof, I know, but it is suggestive. Is Germany any longer the leader in medical science? No, it is not. Is France? No, it is not. Is England? No, it is not. Leadership has passed from Europe where these various social schemes have been tried out, to the good old U. S. A. Now that at least is significant and I think that while we must be coming up the scale, they have to some extent gone down. America no longer goes to Germany for its postgraduate education. As a matter of fact, many Europeans are now coming to the United States for training, and I mention that one thing to indicate that the thing that concerns the doctor is how these different things are going to affect the quality of medical care in the United States and if we don't have a broad enough vision to sustain and to constantly increase the quality of medical care, your economic considerations are worse than failures and I think you should give careful consideration as to this for that is the thing in the last analysis that concerns the medical profession, as to how and what effect it is going to have on the quality of medical care. Doctors who have studied it feel that it will be bad. Maybe they are wrong, but there is certainly sufficient evidence to justify that opinion. I think that is about all I have to say."

Do you remember that statement?

A.—Yes, sir.

Mr. Lewin:—Now, just a moment. I would like to make a suggestion to your Honor, if you will excuse me.

Mr. Leahy:—Yes, sir.

Mr. Lewin:—We offered this transcript in evidence yesterday, and your Honor held it under advisement. I think it is perfectly competent evidence.

THE COURT:—I will hold it is in evidence now, and either side can read any part.

Mr. Lewin:—Your Honor, I hadn't quite finished my suggestion. I think if you would bear this sort of procedure in mind in offering proof, I think we are entitled to this consideration. This was offered by us and should be considered as a whole, that statement. It shouldn't be read in piecemeal fashion such as this by reading paragraph after paragraph and asking him if he remembers.

THE COURT:—I will tell you what I will do if you wish. If you wish, I will suspend now the cross examination and you may read it. Or, if you prefer, after Mr. Leahy gets through you may read it.

Mr. Lewin:—I think it would take time.

THE COURT:—Suppose you gentlemen take a rest.

Mr. Lewin:—May Mr. Penniman step down?

THE COURT:—Yes. You may be a little more comfortable if you step down. You may go out, if you prefer.

The Witness:—Thank you.

(Mr. Lewin read the report to the jury repeating to where Mr. Leahy had discontinued, including and then going on:)

Dr. Verbruyke:—Mr. Penniman, ladies and gentlemen, I hadn't intended to say anything, but I think there are several points. First, most of you are laymen and I think perhaps we might bring out a little about what medical ethics are. The system of ethics was not devised for the protection of the doctor or his interests, but in every case from the time of Hippocrates down, has been made for the good of the patient. I think that you will know, that you will realize in the long run the doctor is not selfish by reason of our emphasizing two points: First, if a doctor ever invents some wonderful discovery of some sort, he is not allowed by medical ethics to patent it, it goes for the good of humanity, and, second, the doctor is unceasingly developing preventive measures, which takes money right out of his own pocket. We now have the tests for Scarlet Fever, Diphtheria, etc. where they can be prevented. I think those two examples will show that we are not speaking from a selfish standpoint, but we do have the good of the patient at heart. I am sure that all of us appreciate the high ideals and aims of this organization, and we are heartily with you in that. The only thing is the method of achieving that and I don't think there is such a very big difference between what the doctors can agree to and what you wish. I think there are just two small points but that the first and main consideration lies more upon the sixth one of those principles of medical ethics, I think it is the sixth, and that is that the patient should have always a free choice of physicians. Now to bring that down to a practice, to your own group from a practical standpoint, I have no doubt that you can get good doctors on your staff as full time salaried doctors. You can't have the best. There are two or three reasons why you can't have the best. One, there is no such thing as the best in a broad classification. In other words, we may have fifty good Ear, Eye, Nose and Throat Specialists in Washington and maybe only one or two who are capable of taking an open safety pin out of a lung. We may have an excellent surgeon when it comes to certain things like Thyroid operations. He may be way below the best when it comes to . . . There can't be any best. Medicine is so specialized that certain men stand out in one little tiny thing, perhaps in which they are best.

In the second place, because unless an organization has free choice of physicians the best doctor is not permitted. All members of the American Medical Association are not permitted to have a part with it. Now, doctors are very jealous of the privilege of belonging to the American Medical Association because practically all good doctors in the United States are members and they wouldn't give up the prestige to accept a salaried position if they knew it meant the likelihood of their not being able longer to continue their membership in the American Medical Association, and it is mandatory and absolutely compulsory upon us. Unless the American Medical Association would see fit to change them, no member of our Society could have anything to do with an organization which would not permit free choice of physicians.

From another standpoint the income of good doctors is higher than any salary you could afford to give. That is not accomplished by big fees. You aim to spread the cost of medical fees over many. The doctors in the higher income brackets spread many fees over many patients, but the best doctor would not accept a salaried position for anything you could possibly pay.

That brings you down to two practical points. I see no reason why your organization should not instead of having salaried—I am speaking personally now, not for the Medical Society. I see no reason why you couldn't have free choice of physicians, that is having every member of the Medical Society who would agree to live up to certain fee tables, to have the choice of being chosen by the patients, to have only one salaried man in your organization, the Director, who would serve not in a medical capacity, but in an administrative capacity entirely, and that sort of proposition would entail something such as Dr. Macatee suggested, whereby the patients pay a little bit of the cost. Of course, the Medical Director would have to have a certain amount of supervision as where any patient was running up too large a bill, or if there were some unscrupulous doctor running bills up too large but with those two things in mind, I feel pretty certain that the Medical Society and this organization could get together and be very helpful to each other; so I want to leave, from my standpoint, that one thought, to see whether instead of having salaried personnel, you couldn't find it possible to allow the patient the free choice of physicians, which is the big stumbling block as far as the doctors are concerned.

Mr. Russell:—Expresses appreciation for the doctors coming here.

Mr. Loomis:—I would like to inquire whether the committee has given consideration to the fact that there are other group associations in existence whose history over a period of time and through a fairly large clientele has been highly commendable and helpful and whether that fact, taken with the fact that in our own organization we are a voluntary association operating through the corporation patterning our work after the successful operation of a very large number of these group associations; whether that has been taken into account and the success of those organizations recognized, or whether you have given consideration to the development of those associations, that have done such capable work, that other associations are steadily growing up, of which ours is not a direct pattern, but certainly taking a leaf out of their experience and being carefully developed along lines which are not new to us or new in the field, but have proven over a sufficiently long time useful service to groups similar to ours. Has the committee given consideration to that?

Dr. Macatee:—I might say that the committee has given consideration to these groups which have grown up throughout the country, the most notable of which is the Endicott-Johnson Corporation in New York. There are others, however, and we have felt that there were conditions surrounding those groups and organizations which set them aside particularly as specially favorably placed to succeed. We notice in your Articles of Incorporation that, what shall I say, that the benefits of your purpose is available for any employee of the Federal Government wherever he may be placed unless his employment happens to be in the Army or Navy where medical care is part of his emoluments; and we have felt that we should have to be very slow before we gave our endorsement to a matter of this sort because we must recognize that, potentially at any rate, this organization by virtue of its Articles of Incorporation might involve about one third of the population of the District of Columbia and, therefore, the question of public policy and its effect upon the general medical care of the whole community would have to have our careful consideration for the reason that, suppose this organization should achieve at least the theoretical possibility, that would leave the care of the rest of the population of the District of Columbia in the hands of the medical profession as it exists, with the total obligation for the indigent, the unemployed, the dispensary and staff work of the hospitals, and leaving the very large colored population to the colored profession in whose hands that practice largely rests, that, of course, would have a profound effect upon the whole public economy of the District of Columbia and we would need to give careful consideration of it.

Mr. Russell:—(Raised the question, as the doctor had said, if we get real sick, would we not go looking for an outside doctor?)

Dr. Macatee:—You will, and I think it will rack your organization.

Mr. Kirkpatrick:—You mentioned in the opening part of your remarks, I understood you to say that, you stated from the premise that this corporation started to practice medicine. One of the purposes of this organization is to provide medical attention for those who—

Dr. Macatee:—May I interrupt to say that I did not state that as a premise, but as one of the things we would have to examine carefully before we can give approval and advice (cooperation) to the corporation.

Mr. Russell:—We expect to avoid that situation.

Mr. Kirkpatrick:—One of the purposes of this organization is to provide medical attention for those who don't receive it because they can't afford it.

Dr. Macatee:—I would say I don't know that that would enter into the situation if it came to the question of judicial interpretation whether it is a corporation practicing medicine, or not, I don't know; I am not a lawyer, but I would say I don't believe that question would arise. It would arise entirely from the fact that a corporation is in fact a person and a person must be licensed, and it would depend upon whether the corporation is entitled to practice medicine. The Medical Society takes an entirely different view of the situation for the reason there is no, in our opinion, there is no person in the District of Columbia, Federal employee or otherwise, who can't get medical attention when he needs it, and if he has no money and no prospects of having money, he can get it under municipal auspices. If he is short of money and by reason of illness is unable to pay in cash, the cost of his medical care, the medical and dental professions have already set up a mechanism by which he may budget the cost of his care over a period of five, six, seven, eight or nine months, the cost of which is defrayed by the doctor, dentist or hospital involved.

Mr. Kirkpatrick:—The cost would be on a higher scale than we could provide the same service for.

Dr. Macatee:—I think you will find that the scale of fee for people in that level will always be scaled down to their level. When it becomes necessary for them to apply to . . . I am speaking by and large and not with reference to an occasional fee. When a doctor by had judgment or by occasionally may oppress someone, but when a patient is in an economic level where he has to apply for relief of that sort, the scale of costs immediately goes down to his own level. Of course, if he can't meet the cost on a reasonable basis of compensation for services rendered, then the resources of the Community Chest come into play on his behalf and he may receive his services gratuitously and at the hands of the medical profession who compose those staffs entirely gratuitously. I want to bring out for the benefit of all the laymen present, because there is a singular lack of information on that point, that the staffs of the hospitals who attend any patient in the wards of the hospitals who receive any help from the Community Chest, do so without any compensation from the patient or from the institution.

Dr. Groover:—May I say something regarding one or two points that have been raised. Doctors generally extend unlimited credit; they are the only group of people in the country that I know of who do extend unlimited credit. Anybody can come into my office tomorrow, it has been so and I am sure it is so with all of these doctors here; their credit rating is never looked up before we treat them. We treat them first and do the best we can for them, and the question of getting paid for it is the last thing that is considered. Now, a business man would consider that rotten, and maybe it is. We know perfectly well that doing business on that basis results in a very considerable loss and we know perfectly well from experience, for instance, under the Workmen's Compensation, which by the way we don't consider approved, but we practice under the Workmen's Compensation. We know by experience we can attend groups of individuals where we know there will be no loss in collections, about 25 per cent cheaper than we can under the present scheme. Is that clear? The medical profession extends unlimited credit and for that reason there is necessarily a large loss in collection. They never ask the patients who may come in the office . . . but few of them I dare say are wise enough to know better. I should say at least 90 per cent of the doctors practicing in the District of Columbia do. If you go into his office or send for him to go to your home to see you, he will not raise the question of money. He will do what he can for you and run the risk of getting paid when he can. It is true that under such a system, good or bad, there is a considerable loss in collections. Certainly doctors can't get it when the patients haven't got it. That is obvious. He might as well stop trying. I have stacks of hundreds of files in my office now, and it is perfectly true that if we deal with a group, making a bargain with a group, we can do it about 25 per cent cheaper.

Mr. Zimmerman:—Is it true that about 60 per cent of doctors' accounts are collectible? The national average about 40 per cent of their accounts are never paid?

Dr. Groover:—I presume there is some evidence on that point, but I don't know and I doubt if there are any very accurate figures on it. It varies so in different types of practice. I will give you something in my own experience if that will be helpful. Our losses are about 25 per cent. Strange as it may seem, most of those losses are

because they deal with a different type of individuals and I think we are perhaps slightly high.

Mr. Zimmerman:—Doctor, do you feel—I am wondering if you feel that a cooperative arrangement to make certain that the doctors will be paid for what they do, thereby stabilizing the income of the doctors who do the work, if that would be desirable to the medical profession. Etc. Etc.

Dr. Groover:—I think it would be exceedingly unfortunate to stabilize the income of the medical profession, because there is just as much difference in the qualifications of doctors as there is in the qualifications of stenographers. Some of them can do it and some of them are rotten . . . I may pay one stenographer \$200 a month. I actually have another who isn't worth \$50 . . . would be unfortunate to stabilize the pay of doctors.

Mr. Kirkpatrick:—Dr. Macatee, I think you stated that group practice in foreign countries has tended to deteriorate the quality of medical (?). Is there any evidence in this country so far as it has gone?

Dr. Groover:—I should say none, for really it hasn't gone very far.

Dr. Verbruycke:—The most successful, apparently, project of the kind is a privately owned concern, the . . . Of course, all of the different cooperatives vary a little bit. The Endicott-Johnson is an industrial concern. There are a few which have been sponsored by doctors out in the far west, in Washington and Oregon. One sponsored by the Medical Society of . . . County, Georgia. They are apparently having good results, except that they are having troubles with their finances. Their bills are behind and they have not been able to keep up.

Mr. Russell:—How old is that?

Dr. Verbruycke:—That's about a year or a year and a half old.

They are so few and they are so different, we don't have a great deal to go on. I would like to ask Mr. Zimmerman, 'Did you not mean by stabilizing the doctors' income not so much putting it on a fixed basis as eliminating the loss, stabilizing more than equalizing, and that meant, I think, on Dr. Groover's assertion that we could practice medicine at a 25 per cent less cost than we do if we were assured of our income. There is no question but that we could do that. There is no question but that the members of the Medical Society would probably be for such an organization if the patient had free choice of physicians.

Mr. Zimmerman:—We would like to look on this arrangement as an arrangement which provides through cooperation the possibility of a method of payment and from what you have said this evening I sense that you are in sympathy with that aspect. I am interested in what you say about the free choice of doctors. I think it would be helpful if we explore that a little further together. Do you have the notion, tell me, that with a group of employees whose incomes average—that is, 60 per cent of the incomes are \$1,800 or less, who must provide shelter, clothing, food, school books and . . . that families have to purchase, do you have any notion that that group of people have a free choice of doctors now in our present arrangement?

Dr. Verbruycke:—Emphatically, I do, . . . and they could do even better if losses were cut out.

Mr. Zimmerman:—I don't think they have a free choice of doctors.

Dr. Verbruycke:—I doubt if the patients who come to me have average incomes of over \$1,800, and I am supposed to be a doctor in the higher brackets.

Dr. Groover:—Same here.

Mr. Russell:—The average income in Washington is \$1,500 to \$. . .

Dr. Macatee:—I would like to ask Mr. Zimmerman . . . whether he means by that an income of \$1,800 per year automatically limits people with such an income in their choice of physician to the poorer class of physician. Is that what you mean?

Mr. Zimmerman:—My point is that most of these people have no financial reserve, have no savings and can't afford to have the annual periodic physical examination and for that reason they only employ the services of a doctor when they are in trouble, sick and think they are going to die, and they are going to have to select their doctor from the group for whose services they can pay. I don't think they have a free choice of doctors in the sense that you gentlemen have been discussing it tonight.

Dr. Conklin:—I would like to say for the information of the ladies and gentlemen present that the Medical Society of the District of Columbia took cognizance of the rather desperate situation that most everybody was in, including the physicians themselves; the financial outlook was not good. In the midst of that the Medical Dental Service scheme was worked out. I believe that most of you are familiar with it. We have certainly tried to publicize it. It means that the whole fee and the whole expense may be definitely budgeted; the doctor's fee, the hospital fee, the laboratory fee, that is money that would go to . . . would all be lumped right in one sum and that is collected through this Medical Dental Service Bureau at 8th and I. Ten per cent is retained to maintain the overhead and we may say that the Medical Dental Service Bureau has just gotten by financially, and that is all we expected it to do. We have taken care of a great number of people and I am sure that Mr. Zimmerman's question can be answered right now by saying that if we will take Jones down here on Section Street, wanting to have his tonsils taken out, and he picked one of our Nose and Throat men who has a large practice. He would go down to the Medical Dental Service Bureau and say 'I want Dr. . . . to take my tonsils out. I haven't but so much income.' Right down there a man by the name of Trainor takes out a pencil and paper and finds out what his income is, how it is budgeted, how much goes for clothing, shelter, etc. He finds that the man has left about \$5.00 or \$10.00 which he might possibly put on a medical bill. This has actually happened. It is not theoretical or hypothetical. They say I don't see how I am going to do it. He charges \$75 or \$50 to take tonsils out and this is all I have.

That bureau has called up doctors innumerable times and says here is someone who wants his tonsils out. We have gone over his income and he can't possibly pay more than \$35 to take his tonsils out. Will you accept it? Those cases have been accepted and they have been accepted by outstanding Nose and Throat men. The same thing has been done for appendectomy. Those fees have been adjusted.

Now, then, furthermore, I would like to say there was a great number of people that were unable to pay, certainly unable to pay \$3 for a house visit, they might possibly pay \$1 for a house visit. They might possibly pay \$25 for an obstetrical situation. I believe I was really proud of the local medical profession and its reaction to the attempt to get a panel of doctors who would be willing to accept \$1 for a house call, \$25 for an obstetrical case and other fees in proportion. We have that list in the Medical Society Office; on that list are men who you would be actually surprised to see there; Obstetricians who would be willing to go out and take cases for \$25. The names are there. They signed up. We had this panel. The only requirement—they would have to be certified by the Medical Dental Service Bureau as being unable to be more than \$25 for an obstetrical and \$25 for appendectomy and I think that very well answers what Mr. Zimmerman had in mind, certainly as far as the effort made by the local medical profession, to take care of those individuals who would not have sufficient funds.

As far as the periodic health examination is concerned, you may or may not remember. In about 1930, the American Medical Association started its insistence that more periodic health examinations be made. The slogan was established 'Get a physical examination on your birthday annually.' Not one single word was said about how much to pay for this examination. The thing was to have the physical examinations, I want to say that we had public meetings; the Medical Society of the District of Columbia sent speakers to various organizations to sell this idea and I also want to add most emphatically that these annual physical examinations brought the doctor from zero up to \$10 say, and I am just as sure as I set here, that if these individuals about whom you are speaking had the idea sold to them about a physical examination, they could go out tomorrow to get those physical examinations without the necessity of putting any money down. I believe it is more the lack of willingness on the part of the individual or lack of knowledge that those things haven't been done more; that is one of the main things. They are going to take care of the individual while he is well. I just believe that sort of thing can be taken care of and I believe that this Medical Dental Service Bureau has answered many of the economic problems as far as medicine is concerned. If any of you haven't been down there, I would suggest that you just drop in and say you have an income of \$1,800 and that you want to have an appendectomy by a surgeon. Go down there and find out what happens to satisfy yourself.

Dr. Groover:—I want to say one more word, in regard to periodic examinations. I think the reason that periodic examinations are sought after is that the American Medical Association had given such a boost and because the doctor can't realize . . . If we accept the care of infants and pregnant women, the periodic examinations of infants and pregnant women, the ordinary physical examination that one would get once a year at a doctor's office is worth very, very little. I know that don't sound right, but it is true. I could have all of my colleagues here examine you tonight and what they can find out by the ordinary physical examination is really very little, and they can't accomplish much; and for that I think the doctor is to blame for putting so much emphasis on its importance. It does have considerable value in the periodic examination of infants and pregnant women and I think, the slogan about 'consult your dentist twice a year' is all right, take it by and large, the periodic examination by this group of people would be worthless. Am I right?

Dr. Mocatee:—No, sir, you are not. It is true that anyone of this group might come into my office and have a thorough physical examination and might go home and drop dead. That is based on the fact that you might have coronary sclerosis, which simply means you have hardening of the arteries, and that . . . to the internist is without physical signs. I think I will be able to tell you, however, that there are some indications that you are having some sporadic changes and your pace of life ought to be modulated, and that is a good deal. To answer Mr. Zimmerman's question practically, anybody with any income, unless he has to spend 100 per cent of his income for the actual necessities of life, in which case he is medically indigent so far as our experience is concerned, and we would find it necessary, unless we supply gave what they required, we would refer them to a clinic where some other doctor or perhaps ourselves, would do it in the setting of a clinic where we knew we were working gratuitously, in such hours as we set aside for that purpose. From the practical point of view, anybody can get a physical examination, and that requires a careful history taken if he is a new patient, that takes time, and then it requires the careful going over of the patient himself, and then it requires the doctor going back into his laboratory for the examination of the blood and urine, and what not. Altogether, if a man is careful and really wants the physical examination to amount to anything, it is going to consume about an hour of his time. If it doesn't require an hour of his time, it is going to require the services of his secretary, which, of course, is going to enter into the cost of the thing. If we take about \$10.00 as the cost anybody getting \$1,800 or \$1,400 in the Government can, I think, in 95 per cent of the doctors' office, in this city, get the thing done and pay for it \$1.00 a pay day.

Dr. Brown:—I think the greatest value of the periodic check-up is the early diagnosis and the . . .

Dr. Mocatee:

Dr. Brown:—Therefore, it comes in that preventive field. Another thing I want to ask . . . the statement was made that a deterioration of the medical practice has resulted . . . of clinics. Have any of you gentlemen investigated the results of the Endicott Johnson . . . or any of the large clinics? . . . an improvement and a better practice of medicine because of the availability of every . . . means or any consultation—

Dr. Mocatee:—I would say that the statement was made as to the deterioration as to the general practice of medicine in a nation. It

would depend upon the universality of the application of the principle in a case of that sort. Any cooperatives or groups in the United States have touched such a very small . . . of the population of the country that it has not affected the general status of the . . . But let's get down to cases and consider what would happen in the District of Columbia provided you were able to obtain the maximum of enrollment in this corporation. As I pointed out a while ago, it would involve about one-third of the population of the District of Columbia. Well, even sixth anyhow, of actual subscriptions, because there are about 100,000 employees. Multiply that by 3.3, you see what it would do here as economic thing. . . . It would simply result in the necessary exodus of a large part of the medical profession of the District of Columbia except those of us who have been in practice 30 or 40 years and are about to go on the shelf anyhow. It would result in the new blood, which is necessary to keep-up that end of it. It is impossible in the spur of competition in which medical men are in times and a little ahead, if they are going to get anywhere and in addition to that I would like to call your attention to the fact that we are all in accord with the idea that if people can't lump their resources and those who are fortunate, their money goes to those who are unfortunate, recruits itself. It educates itself, it enlarges its capacity of itself and it is done by the social underwriting of the sum of medical fees that the whole population pay so that any social arrangement by which that underwriting is so manipulated that free competition, the free choice of physicians is limited, then you wreck the works. Now that will happen just in proportion as a social experiment involves larger and larger blocks of the . . .

Dr. Brown:

Mr. Pennimon:

Mr. Loomis:

Medical Society:—It seems to me that these gentlemen representing the concern and apprehension about the effect of the operation of this voluntary organization in this area, a concern which we want to recognize honestly and deal with sympathetically. The point raised by Dr. MacIntee that such a large element of this population is made up of Government employees and that if the membership of this corporation reaches the nth degree, that a large proportion of the doctors in the District will be driven out of business, seems to me to be easily answered, that as we grow to that size, if we ever do, we will absorb the physicians here in the District presumably very much like the . . . that we can template for our present organization and that if that number of physicians is needed in this area, and are now making a living, that number would continue to be employed and continue to make a living on a basis of employment and income and because I recognize the serious concern of the group here reflected, I have no doubt but . . . runs through the profession in the District. I would like to ask a representative of this group whether it would not be agreeable to the committee and their associates to let this program of ours which is equally serious and built on the same principles which they hold in their medical fraternity of ethical service to our associates in this membership, if they wouldn't and can't very properly defer any decision or endorsement of this group until we have lived along a while and they have had an opportunity to judge us, not from a standpoint of what any other group has done, but from the standpoint of how we operate here. I assume, although I don't know, and haven't asked, that the Medical Society has not endorsed any considerable number of the other group associations and they are continuing to perform a very satisfactory service. I don't know and would seriously question until informed whether the American Medical Association has endorsed the Endicott-Johnson plan or whether they have endorsed any of these other plans and if that is a fact, can't they realize that we are just as seriously interested in doing the right thing by the medical group as they would do for us, simply delay any decision or any expression of point of view until we have operated, we being free all the time to consult them, they being free all the time to consult us, working together cooperatively, each recognizing the others ability and honesty, working it out together on a plan satisfactory to this group here.

Dr. Brown:—The question was stated that Germany has lost her place in the sun and her power to impart knowledge. I would like to ask you if the Hitler regime in Germany has not been responsible. After the war these things have changed in Germany, Vienna, Paris and London, and since the war all of that has been lost to the United States, who has been much more progressive, who has had more means and more funds to proceed along these lines.

Dr. Groover:—I think about Germany, there are many factors, but it is merely an implication . . .

Dr. Brown:—As a matter of fact, our investigation and my own investigation of these clinics—we find that better medicine is practiced than was practiced before in the same locality. I think that can be borne out also by the District.

Dr. Mocatee:—Mr. Loomis made some statements to which I would like to reply, that the economic aspect of this project—I had not intended to touch upon it at all. It is not at present a matter that had received very much consideration but the discussion grew out of other things and if all of the other factors which I adverted to when I first spoke were ironed out, then of course the services of the organization would have to be conducted by the medical profession, because that is the . . . of the service, and they would be recruited from somewhere, presumably to the extent that they . . . from the District of Columbia, but the difficulty at present that we came to discuss with you and advance was the . . . concrete plan of cooperation and that we were unable to bring some of these principles of ethics by which we are bound to see how certain information as we could so that we will be able to advise our membership what their attitude should be.

Mr. Penniman:—Gentlemen, speaking in behalf of the Board of Trustees of this organization, I want to express to you gentlemen our very sincere appreciation of the courtesy of this visit, your remarks and your contribution to this meeting and to give you our assurance that everything that you have had to say here this evening will be given very careful consideration. We thank you for coming up and we hope that we may have the opportunity of seeing much more of you.

By Mr. Leahy:

Q.—Have you any recollection now, Mr. Penniman, as to how long after this meeting, the minutes of which have just been read, it was that Group Health Association entered into negotiations with Drs. Lee and Scandiffio?

Mr. Levin:—I don't know whether I read it; the date of that meeting was July 26, 1937, this meeting from which I read.

The Witness:—I am not sure I can give you the date exactly; I think it was subsequent, of course, to the meeting.

(The discussion was then concerned with the time of subsequent conversations with prospective members of the staff.)

(The question was raised as to calling of legal counsel by G. H. A., Inc.)

Q.—You advised with them [Lee and Scandiffio]? You told them to withdraw the resignations, did you not?

A.—Yes.

Q.—And you did that because you wanted to put the District Medical Society in the position of expelling them, is that right?

A.—No.

Q.—Why did you tell them to withdraw their resignations?

A.—Because Mr. Sandidge of the Emergency thought that Lee was not entitled to hospital privileges since he was no longer a member of the society. I told him that so far as I knew he was a member. His resignation had been sent in, it is true, but not acted on; therefore in order "that you may continue with the privileges of the Emergency I suggest that you withdraw the resignation."

Q.—Did you suggest that with reference to Dr. Scandiffio for the same reason?

A.—I did.

Q.—Although you knew at the time that Drs. Scandiffio and Lee had resigned, or tendered their resignations, because they knew they could no longer remain members and continue to violate the society rules at the same time, you suggested that they withdraw those resignations?

A.—That is right. We were hopeful that some arrangements might be made and they would forget the charges.

Q.—Then you knew, did you not, that when the rule which Dr. Macatee had drawn to your attention on the 26th day of July, that a member of the association could no longer remain a member of the District Medical Society?

A.—He said that was the rule.

Q.—You knew, then, when you advised these doctors to withdraw their resignations that there was that rule in effect, and that Dr. Macatee had stated on the 26th day of July that that was one of the grounds of the uncertainty of the association as to how they should advise their members?

A.—That is right.

Q.—You will recall that after the resignations were withdrawn that the charge was then made that you referred to yesterday?

A.—Yes.

Q.—And that resulted in a trial?

A.—A hearing.

Q.—Did any members of the staff of legal counsel of H. O. L. C. represent Dr. Scandiffio?

A.—Yes. I testified to that yesterday.

Q.—The whole battery came up?

A.—On both sides; there was a battery for the District Medical Society, also.

Mr. Levin:—Who was the heavy cannon in this battery?

By Mr. Leahy:

Q.—Dr. Russell, or Mr. Russell, was he not the chief counsel?

A.—Not for Group Health Association.

Q.—Was he chief counsel for Dr. Scandiffio?

A.—I wouldn't say he was chief counsel; I think Mr. York was the counsel.

Q.—How many hearings did you attend?

A.—Three.

Q.—Was there a hearing subsequent to them?

A.—I understood there was; I was out of the city on official business.

Q.—And each one of the three you attended was rather extensive?

A.—Yes.

Q.—Did you tell us yesterday that the reason why the contract which Dr. Macatee had inquired about, and also inquiry

had been made in the meeting of June, at the executive committee, wasn't produced was because the Home Owners Loan Board had to give authority so it could be produced, is that right?

A.—Yes.

Q.—Did you ever seek the authority of the Home Owners Loan to do that?

A.—No.

Q.—Never did?

A.—No, nor do I know that the doctors made application to the board for it.

Q.—What doctors do you refer to, the American Medical Association?

A.—No, I had no contact with the American Medical Association.

Q.—The District Medical Society?

A.—Yes.

Q.—You knew that Dr. Woodward had inquired early in June concerning it?

A.—He never inquired of me.

Q.—You had no information on the subject?

A.—I was told, hearsay.

Q.—Did anybody of Group Health Association make application to the Home Owners Loan Bank Board for that contract?

A.—Not that I know of.

Q.—Under whose authority was it produced at the Scandiffio trial?

A.—The contract?

Q.—Yes.

A.—I guess general counsel of the Home Owners Loan Corporation.

Q.—You saw it produced there?

A.—No, I don't remember that it was.

Q.—Don't you remember that on the first night of the meeting that counsel representing the District Medical Society asked for the production of the contract and it was denied on the first hearing?

Mr. Levin:—Which contract?

By Mr. Leahy:

Q.—Between Home Owners Bank Board and G. H. A.?

A.—I am not entirely clear on that; I think perhaps it might be true.

Q.—Don't you know it was emphasized by counsel there representing the society that he would like to have the contract; and counsel continued to say, "Why don't you produce the contract?" and, "Why can't we have the contract?"

Mr. Levin:—I will have to object to that; this is not proper cross examination.

THE COURT:—He may answer.

The Witness:—I don't remember that.

By Mr. Leahy:

Q.—Didn't you know other people were interested in the contract; to find out what was in it?

A.—Yes, we knew there was a very determined effort to produce it.

Q.—And you were just as determined that it would not be produced?

A.—We couldn't see any reason for its production.

Q.—Why didn't you want it produced, that contract?

A.—The particular reason I didn't want to produce it was I didn't have authority. It was filed with the secretary of the Home Owners Loan; it wasn't in my possession.

By Mr. Leahy:

Q.—Now, passing that for the time being, did you say a short while before recess, when we were discussing Dr. Macatee's statement with reference to the legality of Group Health, that you never had any doubt about the legality of Group Health?

A.—Personally, I didn't; no question had been raised about it at that time.

Q.—Was that the belief of counsel, also, for G. H. A.?

A.—Very definitely.

Q.—Did there come a time when you changed your views?

A.—After we found out there was a good deal of action directed against Group Health, we decided there would be a test.

Q.—Did your own board of trustees change their views about the legality of G. H. A.?

A.—No.

Q.—Did you never discuss with Mr. Russell, after Dr. Macatee had brought the attention of the group to the question of the legality of Group Health Association, after he had brought attention of the board to that in July, as to whether or not its by-laws should be revamped?

A.—No, I didn't discuss that; I recall that that was suggested to the board of trustees and, I think, by Mr. Russell.

Q.—And why were the by-laws to be revamped?

Mr. Kelleher:—We object to this; it is clearly beyond the scope of cross examination. We did not go into any of these matters on direct examination.

Mr. Leahy:—He brought that out himself, with reference to the cross examination.

Mr. Lewin:—Well, then you brought it out.

Mr. Leahy:—Well, then I have the right to search him on it. He said that one of the reasons why the Medical Society was uncertain as to what it could or should do was because of the question of legality; that such question had come up.

Mr. Kelleher:—He is now attempting to go into something on cross examination which was not testified to or concerning on direct examination.

Mr. Leahy:—Now, then, if your Honor pleases, he stated in response to a question as to whether he had supplied the information which Dr. Macatee asked for in that statement, with reference to the legality of the organization, he stated: "No, we didn't, because we had no doubt about the legality of the thing at all." Now, to search that answer I have a right to determine whether there was any doubt in his mind, or whether he was certain of the legality of the plan.

THE COURT:—I think the question may be answered; the objection is overruled.

Mr. Lewin:—Well, your Honor, should it not be limited in point of time?

THE COURT:—I can't be too restrictive; the whole examination is very extensive; particularly on cross examination.

Mr. Lewin:—Doesn't your Honor think that the question should be limited as to time?

THE COURT:—I think this apparently is shortly after that meeting.

Mr. Leahy:—Yes, your Honor.

THE COURT:—I will permit it; I don't mean that I won't put some limitations on the line.

Mr. Kelleher:—This matter relates to something, it is six months afterward.

THE COURT:—Let us go on.

By Mr. Leahy:

Q.—I ask you, Mr. Penniman, if the statement which Dr. Macatee made to you that night, on July 26, didn't cause you as a member of the board of trustees, through your counsel, Mr. Russell, to begin an investigation into the legal setup of G. H. A., as it then stood?

A.—I don't think so, just from the way you put it. I think Mr. Russell perhaps, investigating the by-laws, suggested certain changes which he thought should be made, and I think the board of trustees, relying on his judgment, agreed that they be made.

Q.—Why was the change in the by-laws suggested?

A.—I don't think it was suggested.

Q.—I will show you something to refresh your recollection; take a peek at that.

Mr. Lewin:—I should like to have the record show that we have no objection to this letter.

(Mr. Leahy handed the witness a document.)

By Mr. Leahy:

Q.—Doesn't that refresh your recollection?

A.—Yes.

Q.—Now, then, is it not a fact, having read that letter of Mr. Russell's, that you know that the legality of G. H. A., as to whether it was conducting an insurance company business at that time, was seriously in question, even among yourselves, even among yourselves, forgetting the medical profession?

Mr. Kelleher:—I make the same objection, because this letter is dated Nov. 16, 1937, a great many months after this statement about the legality.

THE COURT:—Overruled.

The Witness:—I think there had been a great deal said about the question of legality. I had heard it and seen it in the papers. There was a great deal of discussion. My recollection is that Mr. Russell, as we progressed, as we went along, as our legal adviser, made recommendations for such changes as he thought would be beneficial to the organization, presented them to the board, and the board agreed with him and followed his recommendations.

By Mr. Leahy:

Q.—Was it beneficial to the organization, or to strengthen the legal position of the organization?

Mr. Lewin:—Well, is there any difference in that? Any difference between those two things?

Mr. Leahy:—Yes, I think so; I think there is a difference.

By Mr. Leahy:

Q.—The motive was to strengthen the legal position of G. H. A., was it not?

A.—I think you will find the by-laws were written some time earlier in the year, and that Mr. Russell, as we went along, where he found any situation where he needed it to be strengthened, recommended to the board such changes, and the board adopted the recommendations.

Q.—Now, with that letter before you, let me ask you if, on the 16th day of November, 1937, Mr. Russell then didn't present to the Federal Home Owners Bank Board what was then a revamped set of by-laws, and if he didn't assign as the reason for the amendments that they were "to strengthen the legal position"?

A.—Yes. He didn't revamp the by-laws; he made certain changes which he felt, as an attorney, were necessary to strengthen the association's position.

Q.—He revamped the by-laws to get around the situation that it was conducting an insurance company business in the District of Columbia without authority, did he not?

A.—I think he limits, in that letter, the reasons for the amendments.

Q.—And those changes were made at that time because he, as general counsel, felt it necessary to amend its by-laws in order to strengthen the legal position of G. H. A. if it should be determined that the association was in the insurance business, isn't that true?

A.—I think that is the position that Mr. Russell took; it was his idea.

Q.—Now, were you so certain then, even after the amendments had been submitted to the board and, as you say, approved, that you were still not violating the law?

A.—What? Were we certain that we were not violating the law?

Q.—Yes. Were you certain of that?

A.—I had no idea we were violating the law.

Q.—Will you be good enough to take a look at the second sentence of the last paragraph of the letter and see if that refreshes your memory?

A.—Yes, that refreshes my recollection.

Q.—That refreshes your recollection?

A.—Yes.

Q.—Now, does Mr. Russell there state or reflect the views of the board which approved these by-laws when he stated, "This revision excludes memberships except in the case of employees of the executive branches of the Government, excluding the Army and Navy, and this provision is made to assure us the benefit of an exception from insurance regulations if we are held to be an insurance company"? Does that reflect the views of the board of Home Owners Loan?

A.—Well, I am not an attorney, Mr. Leahy, and Mr. Russell undoubtedly went into this question very carefully; and he presented his views to the board, we accepted his views.

Q.—Do you recall now, after reading this letter, why it was that Mr. Russell made the statement, "if we are held to be an insurance company"?

A.—I think there was a great deal said about Group Health; that it would be held to be in the insurance business, an insurance company.

Q.—That was the thought in your own group?

A.—No, that was the thought outside the group.

Q.—And your own group was not certain about it?

A.—I personally wasn't, but the lawyers would have to work that out.

Q.—Then your lawyer advised you he was not certain?

A.—Yes.

Q.—And what he was trying to do was that he was trying to get the advantage of the insurance laws in force in the District of Columbia if you were held to be an insurance company; isn't that it?

THE COURT:—He would only know if Mr. Russell expressed that view to him.

By Mr. Leahy:—

Q.—Well, I will ask him the question if this is the letter that reflected the views?

Mr. Lewin:—Of whom? I think you ought to read the whole letter. You are taking bits of it.

Mr. Leahy:—I don't wish to offer it at this time; this is not our case.

Mr. Leavin:—You Honor, I think he ought to read the whole letter.

THE COURT:—Well, you will have the right to offer it on re-direct examination. That particular piece of paper doesn't belong to any particular side. You may offer it if you wish.

Mr. Leavin:—Well, your Honor, I don't think he is using it as refreshment material for the benefit of this witness.

THE COURT:—If you think it ought to go in evidence, you may offer it and I will rule on it.

Mr. Leahy:—If your Honor please, I have submitted to counsel a letter dated July 27, 1937, to which there was no objection. I don't care to offer it in evidence.

THE COURT:—You are not going to offer it at this time?

Mr. Leahy:—No; I just wish to refer to certain portions of it.

By Mr. Leahy:

Q:—I am just going to ask you whether you collaborated in the preparation of the third paragraph with Mr. Childress: the third paragraph on the second page. Did you collaborate with Mr. Childress in writing that document?

A:—No, I don't recall that, and of necessity I would not be the one.

Q:—Why do you say "of necessity"?

A:—Because Mr. Childress is liaison officer between the Home Owners Loan and Congress, and all communications to Congress are referred to him. He investigates the circumstances of the inquiry and makes reply to Congress. That being one from Congress, it could have gone to Mr. Russell or Mr. Kirkpatrick, or any one.

Q:—Did you know that senators were making inquiry about this contract that we have mentioned at this very time?

Mr. Leavin:—This is certainly beyond the scope of our direct examination.

THE COURT:—Yes, I think so.

Mr. Leahy:—It is just on the point as to why they didn't want to produce the contract.

THE COURT:—I think he has given his answer that he assumed he didn't have any authority to produce it. It makes no difference if other people were interested in the contract.

By Mr. Leahy:

Q:—Now, Mr. Penniman, following the meeting of July 26, the minutes of which were read, did you discuss with any member of the Medical Board of the District of Columbia the question which had been raised at that meeting?

A:—Not that I recall.

Q:—See if I can refresh your recollection. Do you know Dr. Hooe? Do you know the gentleman?

Will you kindly stand up, Doctor?

(Thereupon Dr. Hooe stood up in the courtroom.)

A:—Very well.

Q:—Did you have luncheon with him shortly after that meeting, in the Metropolitan Club in the District of Columbia?

A:—I had luncheon with Dr. Hooe, at his invitation, at the Metropolitan Club, but I don't know whether it was before or after or how soon after that meeting.

Q:—Do you recall discussing with him the matter of Group Health Association and the District of Columbia Medical Society's attitude with reference to it?

A:—Yes.

Q:—And do you recall what word you left with Dr. Hooe with reference to the attitude of Group Health with reference to cooperating with the District Medical Society?

A:—I can't say what I told him; we were there at the Metropolitan Club about two and a half hours.

Q:—I will ask you if you stated to Dr. Hooe on that occasion that if Group Health Association didn't conform to what the American Medical Association thought the practice of medicine should be, as expressed in its code of ethics, that the American Medical Association could change its code of ethics, but you were not going to change Group Health Association; you were going forward?

A:—No.

Q:—Nothing in substance similar to that?

A:—Not even in substance do I recall any such statement.

RE-DIRECT EXAMINATION

By Mr. Kelleher:

Q:—Did you explain to Dr. Neill that Group Health Association involved group practice?

A:—Yes.

Q:—Did you explain to him that it involved prepayment?

A:—Yes, I think so.

Q:—Did you explain to him the duties of a medical director?

Mr. Leahy:—I think he has been all over that.

Mr. Kelleher:—Yes, but you have also tried to bring out from this witness that his disclosures were partial, not complete.

THE COURT:—Oh, he may answer that.

The Witness:—I think we went into that pretty thoroughly.

By Mr. Kelleher:

Q:—Did you refrain from discussing with him anything about the organization of Group Health except the contract between Group Health and the Federal Home Loan Bank Board?

A:—I don't think that question came up during the discussion. We were approaching him with the hope of procuring him as our medical director. We wanted to discuss the proposed plan with him. We went into it in detail.

By Mr. Kelleher:

Q:—Do you recall what Mr. Zimmerman told you about the call of Dr. Woodward?

THE COURT:—Well, if a conversation is to be admitted we might as well admit the letter.

Mr. Kelleher:—It is material here because the question has arisen as to what he knew. During cross examination he was asked as to what he knew as to the controversy as of the time he talked with Dr. McGovern.

Mr. Leahy:—No such question was asked about that.

Mr. Leavin:—Yes, there was, I can give it to you. And just this morning Mr. Leahy asked him if he knew about the doubts the defendant had towards G. H. A. This bears directly on it. This is the very knowledge that he must have had about the so-called doubt; this communication that he got in writing.

Mr. Kelleher:—And yesterday afternoon Mr. Leahy asked Mr. Penniman what he knew about the controversy existing at the time he saw Dr. McGovern.

Mr. Leahy:—It is very clear all I was doing was asking Mr. Penniman as to his recollection of the conversation with Dr. McGovern. We already had in evidence the testimony of Mr. Zimmerman that they talked about the horses and dogs and came away, in Mr. Zimmerman's recollection, without knowing why they had the luncheon at all, and I was developing that.

THE COURT:—I think it is objectionable; objection sustained.

Mr. Kelleher:—I am not going to offer it, but I would like to use it to refresh the witness's recollection.

THE COURT:—As to what?

Mr. Kelleher:—What he knew about the call from Mr. Woodward, or Dr. Woodward, to Mr. Zimmerman.

Mr. Leahy:—Ask him if he has ever seen it before.

THE COURT:—If I am not mistaken, my recollection is that his recollection was refreshed, wasn't it?

Mr. Kelleher:—No, Mr. Zimmerman's.

THE COURT:—Will counsel come forward, please?

AFTER RECESS

WILLIAM F. PENNIMAN—RE-DIRECT EXAMINATION (RESUMED)

By Mr. Kelleher:

Q:—Mr. Penniman, I show you memorandum dated June 5, 1937, and ask you to read it please.

A:—(The witness examined paper.) Yes.

Q:—Mr. Penniman, does this memorandum which I have handed you and which you have read, refresh your recollection about what you knew about Dr. Woodward's call on Mr. Zimmerman when you talked with Dr. McGovern on July 16th?

A:—Yes.

Q:—Will you tell us now what Mr. Zimmerman told you about Dr. Woodward's call?

A:—Mr. Zimmerman told me that Dr. Woodward, I believe purporting to represent the American Medical Association, had called on him and had asked him for certain information. I think he wanted to get the contract, I think he wanted to get a copy of the Federal Home Loan Bank Act, inquiring about the money paid over by the Federal Home Loan Bank Board to Group Health Association; and several questions of that character; which Mr. Zimmerman confirmed in a memorandum to me. He wanted me to know about the visit, and he gained the impression from Dr. Woodward—

Mr. Leahy:—I object to any impressions.

THE COURT:—Objection sustained.

By Mr. Kelleher:

Q:—Will you tell us what Mr. Zimmerman said Dr. Woodward said to him?

A:—He told me that Dr. Woodward had told him he was going to oppose it, that they were very much concerned about this organization, and that if this money could be appropriated here for the organization of Group Health, it could be done elsewhere, and he was very much against it.

Q.—Did Mr. Zimmerman say that Dr. Woodward said whom he was going to oppose?

Mr. Leahy:—I object as entirely leading.

Mr. Kelleher:—He has already stated it.

Mr. Leahy:—Then why emphasize it?

Mr. Kelleher:—All I want to know is whether Dr. Woodward told Mr. Zimmerman what he was going to oppose.

Mr. Leahy:—Now, if your Honor please, a memorandum was submitted to the witness on the stand under close limitation set by the Court. The very matter now which is inquired about is within the limitations excluded. I respectfully object to any further questions on it.

Mr. Kelleher:—Will you Honor hear me on this?

THE COURT:—Well, I think I understand the situation.

Mr. Kelleher:—Well, all right.

THE COURT:—I think your question is unnecessarily suggestive. Let Mr. Penniman—in order that we won't go too far—let him give his own recollection of what factual things were stated. That would come within the limitations of my ruling.

Mr. Kelleher:—Very well, your Honor.

THE COURT:—In other words, confine yourself merely to any facts Mr. Zimmerman stated to you as distinguished from any impressions that Mr. Zimmerman may have stated to you.

The Witness:—Well, he stated to me that Dr. Woodward told him he was going to oppose the organization of Group Health Association.

By Mr. Kelleher:

Q.—Did Mr. Zimmerman tell you that Dr. Woodward had said anything about the annual meeting of the American Medical Association at Atlantic City?

A.—Yes. Yes, he mentioned that, and wanted this information, so Mr. Zimmerman told me, as they intended to make it a subject of discussion before the annual meeting of the American Medical Association at Atlantic City.

Q.—Will you look at this memorandum again, please, refer to the last paragraph?

A.—(The witness examined paper.) Yes.

Q.—Will you tell us whether Mr. Zimmerman told you that Dr. Woodward said that he would oppose the organization personally or not?

A.—No, he was going to organize—

Mr. Leahy:—Why lead?

THE COURT:—Yes. That is very leading, Mr. Kelleher. In other words, when it comes to refreshing his recollection, you you don't want to put the words in his mouth.

Mr. Kelleher:—I don't intend to.

THE COURT:—I am sure you don't intend to?

Mr. Kelleher:—May I rephrase the question, then.

By Mr. Kelleher:

Q.—Will you tell us whether Mr. Zimmerman told you what Dr. Woodward meant when he said that he was going to oppose this organization?

Mr. Leahy:—I object. It calls for a conclusion of the witness.

Mr. Kelleher:—Not at all, your Honor. I am asking whether he said what Dr. Woodward meant.

THE COURT:—The question is, what did Dr. Woodward say, not what Dr. Woodward meant. Let the jury draw the conclusion as to what he meant. What did he say? Quote what he said.

The Witness:—Well, I can't quote what Dr. Woodward said because I wasn't there.

By Mr. Kelleher:

Q.—What Mr. Zimmerman told you Dr. Woodward said.

A.—Mr. Zimmerman told me that Dr. Woodward said he was a member of the American Medical Association, and that they were going to organize to oppose this group Health Association.

(The witness was questioned again about conversation with Col. Glen I. Jones and Dr. Hooe.)

By Mr. Kelleher:

Q.—Had you finished your testimony concerning what Dr. Hooe said at the Metropolitan Club?

A.—Yes. It was a general conversation. He just had this other plan.

Q.—Did he explain the plan, the other plan which he had in mind, to you at the Metropolitan Club?

A.—I think in general terms he did that.

Q.—Will you tell the jury what he said concerning his plan?

A.—Well, as near as I can recall the plan he proposed was that we could have membership in an organization such as Group Health and collect dues, but that we need not have a staff of doctors or nurses or space, or equipment, or what not, that we could use the local doctors and out of the dues collected from the membership, we could pay for the services

performed on its members by these doctors; that those that were not sick would help to defray the expenses of those that were in need of it.

Q.—Did his plan as explained to you contemplate group practice?

(Then came interrogation regarding a telephone conversation with Dr. Hooe.)

By Mr. Kelleher:

Q.—Did you discuss the Lee and Scandiffio hearing at that conversation?

A.—I did that evening over the telephone.

Q.—Will you tell us the substance of that conversation, please?

A.—Well, I told Dr. Hooe I felt very keenly about the way Dr. Lee and Dr. Scandiffio had been treated, and that if my understanding was correct, they were entitled to a hearing, by virtue of a letter sent over his signature, and that Dr. Lee and Dr. Scandiffio replied to that letter requesting a date to be set for the hearing, and also stating they would like to appear with counsel, and it was the understanding that that hearing would be before this C. C. & I. M. Committee, and that that hearing had never been granted.

As a matter of fact, Dr. Lee tendered his resignation before the second meeting and Dr. Scandiffio was tried on the basis before the Executive Committee, and never did go before the C. C. & I. M. Committee. And I told Dr. Hooe:

"You knew at the time that you had promised Dr. Lee that if he would give his resignation to Group Health, that you would be glad to recommend the cancellation of all charges against him."

I said "You knew that, Dr. Hooe."

Q.—What did Dr. Hooe say?

A.—Dr. Hooe didn't deny it, of course.

Q.—Did Dr. Lee resign from Group Health Association?

A.—He did.

By Mr. Kelleher:

Q.—Was there anything more in the conversation with Mr. Sandidge?

A.—I did testify that Dr. Sandidge said that that was the occasion for them sending the usual form notice; and that they would write him a letter. And I thanked him very kindly, and he said they did reinstate him.

Q.—Did you tell Mr. Sandidge about a conversation which you had had with Dr. Neill?

A.—Yes, I told him that Dr. Neill had told me that he was still a member, and that his resignation had not been acted on.

Q.—Had you talked with Dr. Neill?

A.—Yes, I think I had.

Q.—Will you give us the substance of that conversation?

A.—Yes. I just called him up and told him what Mr. Sandidge had done, and what Mr. Sandidge had written Dr. Lee, and asked Dr. Neill if that was the procedure, and he said "Why, no. Dr. Lee is still a member of the Medical Society by reason of the fact that we have not acted on his resignation"; and he was going to get in touch with Mr. Sandidge himself; and I think he did.

Q.—One other thing, Mr. Penniman, and I am through. Will you tell us what action was taken by the District Medical Society concerning Drs. Lee and Scandiffio between the period when those two gentlemen tendered their resignations from the society, and the time when they withdrew their resignations?

Mr. Leahy:—I object to that. If there is any action, it is a matter of record.

THE COURT:—Well, that is true, unless Mr. Penniman was there present with the board, committee, or whatever it was, when they announced their action. If he was there and heard him announce his decision or action, of course he may state it.

By Mr. Kelleher:

Q.—Do you know whether Drs. Lee and Scandiffio received any communication from the Society during that period?

A.—Yes, they received this letter that I referred to saying that they had violated—

Mr. Leahy:—I object. The letter is the evidence.

THE COURT:—Objection sustained.

Mr. Levin:—We want the privilege of recalling this witness to put in this correspondence with hospitals.

THE COURT:—That is understood.

RE-CROSS EXAMINATION

(Mr. Leahy again questioned the others about the Zimmerman memorandum to Penniman.)

By Mr. Leahy:

Q.—When was it Mr. Zimmerman had this conversation with you?

A.—Why, it was either that same day or the next day, I think. It was immediately afterward.

Q.—Did you call Mr. Russell, to advise as to whether or not you ought to show him that contract?

A.—No, I didn't.

Q.—Did Zimmerman state he had gotten any legal advice as to whether he could show the contract or not?

A.—He didn't say to me, no.

Q.—Didn't you say Dr. Hooe's idea would make Group Health a collection agency?

A.—Yes.

Q.—What did you mean by that?

A.—We were going to collect dues. I thought you meant the amount of the dues. We were going to collect those under his plan, monthly dues.

Q.—Aren't you doing that under Group Health?

A.—Yes.

Q.—Then why is there any distinction between the collection agency you have and the collection agency of Dr. Hooe?

A.—There is a very wide distinction.

Q.—What is that?

A.—If I am to be permitted to dwell on it, a member of Group Health under the plan had an opportunity to go up to the clinic under a staff of doctors.

Q.—I didn't ask as to that.

Mr. Levin:—Certainly this is responsive to his question and he ought to have it.

THE COURT:—I think the question calls for the opinion of Mr. Penniman. He stated the proposition of Dr. Hooe as Dr. Hooe proposed it to him. Now, we can determine just as well as Mr. Penniman the difference between the two plans. I don't think we need to go into it.

By Mr. Leahy:

Q.—I will ask you this: In your collection of the dues, you did see to it that the various subscribers of the service paid their dues into G. H. A. Isn't that right?

A.—Yes.

Q.—And you collected them, didn't you?

A.—The business office did.

Q.—Did you have collectors through the department?

A.—Yes, I think so.

Q.—And, at first, you had the check-off system, didn't you, to compel the payment of dues?

A.—No, sir. Never.

Q.—I thought you did.

A.—Absolutely not. We never had a check-off system by which we compelled members to pay dues; never.

Q.—Didn't you have a form which the subscriber signed, in which he authorized deduction from his check?

A.—Yes. I am glad you brought that up.

Q.—Well, did you, or did you not?

A.—We had on our blank a space for the member to indicate whether he wanted to pay direct or whether he voluntarily, as a convenience to him, desired it taken out of his salary check.

There was no compulsion on that.

Q.—Did you have a by-law on the question?

Mr. Levin:—The by-laws speak for themselves.

Mr. Leahy:—That is what I am getting right now. (Examined papers.)

Mr. Levin:—Well, the by-laws are in evidence.

By Mr. Leahy:

Q.—I will say further, didn't there come a time when, in the amendments to the by-laws which we spoke about this morning on the Mr. Russell letter, that you dropped that from your by-laws?

Mr. Levin:—Objected to on the same ground, the by-laws speak for themselves. Your Honor sustained the same objection for Mr. Leahy.

THE COURT:—Very well.

By Mr. Leahy:

Q.—Is that a copy of the check-off? (indicating).

Mr. Levin:—He has testified there was no check-off, and Mr. Leahy is mischaracterizing the testimony in this case time and time again. I object to it.

THE COURT:—I think it would be better not to give it a name.

Mr. Leahy:—All right.

Mr. Levin:—There is no check-off, and you know it.

Mr. Leahy:—I know no such thing. I know if somebody collects, it is just like a labor union.

Mr. Levin:—This jury is going to know about it.

THE COURT:—Give the witness a chance.

By Mr. Leahy:

Q.—Is that it (indicating)?

A.—It is purely a voluntary—

Q.—I am asking you if that is what that is in the by-laws. Mr. Levin:—I make the same objection, the by-laws are in evidence; the by-laws are the best evidence.

By Mr. Leahy:

Q.—Now, did you—

Mr. Levin:—Wait a minute. I want a ruling before you get the same thing in the back door.

THE COURT:—If you insist on that I will have to sustain it.

Mr. Levin:—I am going to have to hold Mr. Leahy down to the proof. He is going perfectly wild here.

Mr. Leahy:—That isn't speaking very well for your Honor.

THE COURT:—I will look after myself.

Mr. Leahy:—I thought I had been very calm about the matter.

THE COURT:—If there is no question of that being the terms of the by-laws there is no reason for wasting time looking up the by-laws.

Mr. Levin:—I think what is sauce for the goose is sauce for the gander. We have been getting all these technical objections in order to get out a simple story.

THE COURT:—You have been getting a good many breaks.

Mr. Levin:—I don't think we have been getting, your Honor—

THE COURT:—I am dispensing them impartially and freely.

Mr. Levin:—I know your Honor means to. I think this is a highly improper way to bring this out.

THE COURT:—Suppose you go on to something else.

By Mr. Leahy:

Q.—Well, I was directing your attention to this particular assignment. I wasn't asking about the by-laws.

Mr. Kelleher:—I thought you said it was in the by-laws, Mr. Leahy.

THE COURT:—Put a question. Let us start all over.

By Mr. Leahy:

Q.—I will ask you now if that is an assignment, or a photo-static copy of the assignment which Group Health authorized in the collection of its dues.

Mr. Kelleher:—Your Honor, may I object to this as being outside the scope of the re-direct. We never went into this phase at all.

THE COURT:—Well, I sustain the objection.

Mr. Leahy:—That's all.

TESTIMONY OF THEODORE WIPRUD

DIRECT EXAMINATION

By Mr. Levin:

A.—Theodore Wiprud stated he has been secretary of the Medical Society of the District of Columbia since June 1, 1938. Before that time he was executive secretary, Medical Society of Milwaukee County. Dr. C. B. Conklin had been secretary since about 1922. From him Mr. Wiprud obtained the custody of the minutes of the District Medical Society.

Q.—And have you produced those minutes here in response to a subpoena, which designates the minutes of specific meetings?

A.—I have.

Q.—And are these the minutes that are before you?

A.—They are.

Q.—On this table. Now, do you know Dr. Conklin's signature?

A.—Yes. I do.

(Mr. Wiprud then identified the minutes of the District Medical Society, the meeting for Jan. 6, 1937 and subsequently.)

Mr. Wiprud also identified minutes of the executive committee and produced the roster of the society and the list of officers and committees.

CROSS EXAMINATION

By Mr. Leahy:

Q.—Is it not a fact that under Hospital Committee, as it is denominated here under the regular committees, there was no Hospital Committee at all in the District Medical Society from July 1, 1938?

Mr. Kelleher:—Objected to as leading, your Honor. This man may be technically called by us, but he happens to be the secretary of the defendant Society, and I do not think counsel for the defense should be permitted to lead him.

THE COURT:—The paper speaks for itself on that.

Mr. Leahy:—Was there an objection to the question?

THE COURT:—Yes. It seems to me the paper speaks for itself.

Mr. Magee:—We have a stipulation covering this, your Honor.

Mr. Kelleher:—No. There are certain members of the Hospital Committee, but both sides are free to show other members.

By Mr. Leahy:

Q.—Do you know well enough, with reference to the publication of the Medical Annals of the District of Columbia, to know that it always published accurately the membership of the various committees?

A.—Well, there were times when the committees were not accurate, when there was a death or something—a change.

(There were further questions about the roster of officers and committees.)

RE-DIRECT EXAMINATION

By Mr. Lewin:

Q.—Now let me show you Government Exhibit No. 31 for identification, which purports to be a letter from you to the American Medical Association, Council on Medical Education and Hospitals, dated Dec. 13, 1937. Is that your signature?

A.—It is; yes.

Q.—Did you send that letter to the American Medical Association, Council on Medical Education and Hospitals?

A.—I did.

Q.—I show you Government Exhibit No. 30 for identification, which purports to be a copy of a letter in reply, dated Dec. 22, 1937, and I ask you whether that is a correct copy of the reply that you received?

A.—It appears to be.

Mr. Lewin:—I offer those two letters in evidence.

Mr. Leahy:—Does your Honor care to see these?

Mr. Kelleher:—Your Honor, to clear up the record I might say this in connection with these documents, that they tie up with the offer which we made yesterday of the proceedings of the House of Delegates for 1934, and I now desire to renew the offer of the volume concerning those proceedings. There were certain portions, if your Honor recalls, that were reserved as to the ruling until counsel for the defense could see the volume and make their objections. I now offer the other portions of the proceedings.

(After considerable discussion the following material from the proceedings of the House of Delegates was admitted as evidence. Mr. Leahy asked to record exception.)

"Proceedings of the House of Delegates of the American Medical Association," referred to and discussed at the bench, are as follows:

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

3. At the New Orleans session the House of Delegates requested an analysis of hospital staffs with a view to determining how many of the physicians connected with hospitals are members of the American Medical Association. The amount of clerical work involved has prevented a check of all the 6,437 hospitals in the country, but a sampling of a large number shows that 87 per cent of the staffs of these hospitals were members of the American Medical Association.

Since the management of hospitals is a function of ownership, it does not seem to be practicable for the Council or for the American Medical Association to lay down a rule that only members of the county society may be given hospital appointments. Obviously, there would be no way of enforcing such a rule. However, it is believed that in all institutions where the staff members have a voice in the selection of their colleagues, an effort should be made to bring into the local society every physician who may be regarded as eligible for a hospital appointment."

"RESOLUTION LIMITING PHYSICIANS ON STAFFS OF HOSPITALS APPROVED FOR INTERN TRAINING TO MEMBERS OF COMPONENT COUNTY MEDICAL SOCIETIES"

Dr. G. Henry Mundt, Illinois, presented the following resolution, which was referred to the Reference Committee on Medical Education: (45) (46)

Resolved, That it is the opinion of the House of Delegates of the American Medical Association that physicians on the staffs of hospitals approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local county medical societies and that the House of Delegates requests the Council on Medical Education and Hospitals to take this under advisement.

PROPOSED AMENDMENTS TO PRINCIPLES OF MEDICAL ETHICS

Dr. George Edward Follansbee, Chairman of the Judicial Council, presented the following three amendments to the Principles of Medical Ethics, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws: (46) (47)

1. WHEREAS, The Judicial Council in its report to the House of Delegates at the Milwaukee session in 1933 recommended the simplification of the section in the Principles of Medical Ethics relating to contract practice by the addition of the wording appearing later in this resolution; and

WHEREAS, The recommendation of the Judicial Council was approved by the reference committee to which it was referred, and was adopted by the House of Delegates; therefore be it

Resolved, That the Principles of Medical Ethics, chapter II, article VI, section 2, be amended by adding to the present wording the following:

By the term "contract practice" as applied to medicine is meant the carrying out of an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization or individual, to furnish partial or full medical services to a group or class of individuals for a definite sum or a fixed rate per capita.

Contract practice per se is not unethical. However, certain features or conditions if present make a contract unethical, among which are:

1. When there is solicitation of patients, directly or indirectly.
2. When there is underbidding to secure the contract.
3. When the compensation is inadequate to assure good medical service.
4. When there is interference with reasonable competition in a community.
5. When free choice of a physician is prevented.
6. When the conditions of employment make it impossible to render adequate service to the patients.
7. When the contract because of any of its provisions or practical results is contrary to sound public policy.

Each contract should be considered on its own merits and in the light of surrounding conditions. Judgment should not be obscured by immediate, temporary or local results. The decision as to its ethical or unethical nature must be based on the ultimate effect for good or ill on the people as a whole.

2. WHEREAS, The growth of groups and clinics has intensified the economic competition between them and individual practitioners; and

WHEREAS, The common custom of employment of "business managers" by the clinics and groups has had a tendency to submerge the ethical principles governing competition among doctors; and

WHEREAS, Clinics and groups were little known, were not serious competition and were not mentioned when the present general revision of the Principles of Medical Ethics were adopted in 1912; be it

Resolved, That the Principles of Medical Ethics be revised as follows: Chapter I shall read (heading) "In General."

Section 1 to remain as it is.

Section 2 to be added as follows (heading) "Groups and Clinics."

"Sec. 2. The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual. As a group or clinic is composed of individual doctors, each of whom, whether employer, employee or partner, is subject to the principles of ethics herein elaborated, the uniting into a business or professional organization does not relieve them either individually or as a group from the obligation they assume when entering the profession."

The remainder of chapter I becomes chapter II with its present heading.

Present section 2 of chapter I becomes section 1 of chapter II.

Present section 3 of chapter I becomes section 2 of chapter II.

Present section 4 of chapter I becomes section 3 of chapter II.

Chapter II becomes chapter III.

Chapter III becomes chapter IV.

3. Resolved, That the Principles of Medical Ethics be amended by inserting as section 4 of article VI, chapter II, "It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body or individual employing him. Such a procedure is beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy."

RESOLUTION ON APPARENT ATTEMPT OF BOARD OF REGENTS OF THE AMERICAN COLLEGE OF SURGEONS TO DOMINATE AND CONTROL MEDICAL PRACTICE

Dr. Charles J. Whalen, Illinois, presented the following resolution, which was referred to the Judicial Council:

WHEREAS, The American Medical Association, including in its membership almost 100,000 physicians, is the only body representing all of the organized profession of this country through delegates regularly elected through county and state medical societies; and

WHEREAS, Various similar medical organizations and groups, including in their membership selected groups of specialists of various types, have from time to time issued pronouncements of policies in the field of medical economics and medical practice, which do not represent the views of organized medicine; and

WHEREAS, The House of Delegates of the American Medical Association has repeatedly condemned the issuing of such announcements and policies, which seriously embarrass the attempts of your organization to secure adequate care for the health of the American people and to protect the ideals of the medical profession; and

WHEREAS, The Board of Regents of the American College of Surgeons, assembled in Chicago on Sunday June 10, promulgated a policy including a prepayment plan for medical care, restricted to the hospitals approved by the American College of Surgeons, to members of the staffs of such hospitals, and to physicians acceptable to such staffs; and

WHEREAS, This action of the Board of Regents of the American College of Surgeons has been spread to the people of the United States through the press on the opening day of the annual session of this House of Delegates; therefore be it

Resolved, That the House of Delegates of the American Medical Association express its condemnation of such tactics and of this attempt of the Board of Regents of the American College of Surgeons to dominate and control the nature of medical practice to the detriment of professional ideals and the welfare of the public.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION

3. The resolution introduced by Dr. G. H. Mundt, delegate from the Illinois State Medical Society, specifying that the staffs of hospitals designated for intern training should comprise only members in good standing in their local county medical societies, is referred to the Council on Medical Education and Hospitals with the following comment: Your committee approves the principle of this resolution but feels that its general application at the present time is inadvisable. Paragraph 3 of the report of the Council indicates that approximately 87 per cent of the staffs of the 6,437 hospitals of the country are members of the American Medical Association.

Dr. Abell moved that the first section of the report, dealing with the printed report of the Council on Medical Education and Hospitals, be adopted. The motion was seconded by Dr. Arthur J. Bedell, New York, and carried.

Dr. Abell moved that Section 3 of the report, referring to the resolution limiting physicians on staffs of hospitals approved for intern training to members of component county medical societies, be adopted. The motion was seconded by Dr. William H. Ross, New York.

Dr. G. Henry Mundt, Illinois, moved as a substitute motion that the resolution as introduced by him be adopted. The substitute motion was seconded and carried, after discussion by Drs. R. W. Fouts, Nebraska; John F. Hagerty, New Jersey; B. F. Bailey, Nebraska; James E. Paullin, Jr., Section on Practice of Medicine; Irvin Abell, Kentucky; William F. Bowen, Kansas; C. S. Gorsline, Michigan; W. E. Bannen, Wisconsin; Virgil E. Simpson, Kentucky; Charles B. Wright, Board of Trustees; Mather Pfeifferberger, Illinois; E. H. Cary, Texas; Leonce J. Kosminsky, Arkansas, and Horace Reed, Oklahoma.

REPORT OF THE REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Dr. H. H. Shoulders, Chairman, presented the following report: Three amendments to the Principles of Medical Ethics were referred to your committee for consideration. They were all prepared by the Judicial Council and introduced by the Chairman, Dr. G. E. Follansbee, who came before the committee to give valid reasons for the adoption of each of these amendments.

Your committee finds that the amendments do not add any new principles. They all serve the purpose of facilitating the interpretation of the principles by the membership at large.

Your committee cannot describe these amendments in language more brief than the amendments themselves:

1. WHEREAS, The Judicial Council in its report to the House of Delegates at the Milwaukee session in 1933 recommended the simplification of the section in the Principles of Medical Ethics relating to contract practice by the addition of the wording appearing later in this resolution; and

WHEREAS, The Recommendation of the Judicial Council was approved by the Reference Committee to which it was referred, and was adopted by the House of Delegates; therefore be it

Resolved, That the Principles of Medical Ethics, chapter II, article VI, section 2, be amended by adding to the present wording the following:

"By the term 'contract practice' as applied to medicine is meant the carrying out of an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization or individual, to furnish partial or full medical services to a group or class of individuals for a definite sum for a fixed rate per capita.

"Contract practice per se is not unethical. However, certain features or conditions if present make a contract unethical, among which are: 1. When there is solicitation of patients, directly or indirectly. 2. When there is underbidding to secure the contract. 3. When the compensation is inadequate to assure good medical service. 4. When there is interference with reasonable competition in a community. 5. When free choice of a physician is prevented. 6. When the conditions of employment make it impossible to render adequate service to the patients. 7. When the contract because of any of its provisions or practical results is contrary to sound public policy.

"Each contract should be considered on its own merits and in the light of surrounding conditions. Judgment should not be obscured by immediate, temporary or local results. The decision as to its ethical or unethical nature must be based on the ultimate effect for good or ill on the people as a whole."

2. WHEREAS, The growth of groups and clinics has intensified the economic competition between them and individual practitioners; and

WHEREAS, The common custom of employment of "business managers" by the clinics and groups has had a tendency to submerge the ethical principles governing competition among doctors; and

WHEREAS, Clinics and groups were little known, were not serious competition and were not mentioned when the present general revision of the Principles of Medical Ethics were adopted in 1912; be it

Resolved, That the Principles of Medical Ethics be revised as follows: Chapter I shall read (heading) "In General."

Section 1 to remain as it is.

Section 2 to be added as follows (heading) "Groups and Clinics."

"Sec. 2. The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual. As a group or clinic is composed of individual doctors, each of whom, whether employer, employee or partner, is subject to the principles of ethics herein elaborated, the uniting into a business or professional organization does not relieve them either individually or as a group from the obligation they assume when entering the profession."

The remainder of chapter I becomes chapter II with its present heading.

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3. Resolved, That the Principles of Medical Ethics be amended by inserting as section 4 of article VI, chapter II, "It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body or individual employing him. Such a procedure is

beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy."

Your committee recommends the adoption of the amendments.

Respectfully submitted,

H. H. SHOULDERS, Chairman.

J. N. HUNSBERGER.

H. C. MACATEE.

E. A. HINES.

R. L. SENSENICH.

The recommendation of the committee that section 2, article VI, chapter II of the Principles of Medical Ethics be amended, as suggested in the first amendment submitted by the Judicial Council, was adopted on motion of Dr. Shoulders, seconded by Dr. Arthur C. Morgan, Pennsylvania, and carried. Dr. Arthur C. Morgan, Pennsylvania, then moved that section 2, article VI, chapter II of the Principles of Medical Ethics be amended as recommended by the Reference Committee. The motion was seconded by Dr. Arthur J. Bedell, New York, and carried.

Dr. Shoulders moved the adoption of the recommendation of the Reference Committee approving the amendment to chapters I, II and III of the Principles of Medical Ethics, as suggested by the Judicial Council in its second proposed amendment. The motion was seconded by Dr. Arthur C. Morgan, Pennsylvania, and carried. Dr. Arthur C. Morgan, Pennsylvania, thereupon moved that these chapters of the Principles of Medical Ethics be amended in accordance with the recommendation of the Reference Committee. The motion was seconded by Dr. A. J. Scott, Jr., California, and carried.

On motion of Dr. Shoulders, seconded by Dr. Charles H. Goodrich, New York, and carried, the recommendation of the Reference Committee that section 4, article VI, chapter II of the Principles of Medical Ethics be amended as suggested by the Judicial Council in its third proposed amendment, was adopted, after discussion by Dr. R. W. Fouts, Nebraska, and Dr. Shoulders. Dr. Arthur J. Bedell, New York, moved that the Principles of Medical Ethics, section 4, article VI, chapter II, be amended in accordance with the recommendation of the Reference Committee. The motion was seconded by Dr. A. J. Scott, Jr., California, and carried.

REPORT OF THE JUDICIAL COUNCIL

Dr. George Edward Follansbee, Chairman, presented the following report:

A resolution introduced by Dr. Charles J. Whalen, Illinois, calls attention to a recent action by the Medical Service Board of the American College of Surgeons approved by its Board of Regents, advocating and publicizing a procedure for furnishing medical and hospital care for certain classes of the population. No consideration appears to have been given to policies or procedure previously adopted by the American Medical Association, of which the Board of Regents are members. The American Medical Association is the one organization representing the entire body of physicians constituting the medical profession and by virtue of that fact is the only organization qualified to speak for the varying interests and ideas of the profession as a whole.

Recurring proposals concerning the entire practice of medicine from small sections of the profession without due regard to the policies of the entire profession as represented by the American Medical Association when presented to the public through other channels than the representative body are confusing to the public mind, are harmful to the profession and give aid and assistance to those bodies and individuals attempting to revolutionize medical practice.

The Judicial Council therefore recommends the adoption of the resolution as follows:

WHEREAS, The American Medical Association, including 100,000 physicians, is the only democratic body representing the organized profession of this country through delegates regularly elected through county and state medical societies; and

WHEREAS, Other medical organizations and groups, representing selected groups of specialists, have from time to time issued pronouncements of policies in the field of medical economics and medical practice, which do not represent the views of organized medicine and which purport to guide the medical profession and the public in the administration of medical affairs; and

WHEREAS, The House of Delegates of the American Medical Association has repeatedly condemned the issuing of such announcements and policies, which seriously embarrass the attempts of this organization to secure adequate care for the health of the American people and to protect the ideals of the medical profession; and

WHEREAS, The Board of Regents of the American College of Surgeons, assembled in Chicago on Sunday, June 10, promulgated a policy including a prepayment plan for medical care, restricted to so-called "approved hospitals" to members of the staffs of such hospitals, and to physicians acceptable to such staffs; and

WHEREAS, This action of the Board of Regents of the American College of Surgeons has been spread to the people of the United States through the public press on the opening day of the annual session of this House of Delegates; therefore, be it

Resolved, That the House of Delegates of the American Medical Association express its condemnation of such tactics and of this apparent attempt of the Board of Regents of the American College of Surgeons to dominate and control the nature of medical practice; and be it further

Resolved, That the House of Delegates request the Board of Trustees of the American Medical Association and the Judicial Council to ask the Board of Regents of the American College of Surgeons, who are themselves members of the American Medical Association, to explain the reasons for their action and to justify the attempt by this small group within a specialist organization to legislate for all the medical profession of this country, truly represented by the American Medical Association.

The report of the Judicial Council was adopted on motion of Dr. C. E. Humiston, of Illinois, seconded by Dr. Albert Soiland, Section on Radiology, and carried unanimously.

REPORT OF SPECIAL COMMITTEE

Dr. Nathan B. Van Etten, Chairman, read the following report of the Special Committee appointed to consider the resolution from the delegates of the State of Michigan submitted to the House of Delegates and a statement of the Board of Trustees concerning Sickness Insurance in the United States:

1. The following resolution was submitted by delegates of the Michigan State Medical Society:

WHEREAS, There is substantial evidence that powerful forces and agencies are working toward the development of health insurance in the United States; and

WHEREAS, During the course of its studies of medical economic problems, the Michigan State Medical Society, after a conference with officials of the American Medical Association, found it necessary to send a commission to England to inquire into the subject of health insurance; and

WHEREAS, The commission presented the following reports . . . (which has been printed in full in the *Journal of the Michigan State Medical Society* and placed in printed form in the hands of all of the delegates of this House); and

WHEREAS, The report of the commission raises certain grave questions concerning the policy of the officials of the American Medical Association toward health insurance and the effects of this policy on the practicing membership of the American Medical Association; and

WHEREAS, The report of the commission was transmitted to the Board of Trustees of the American Medical Association through the chairman in February 1934; and

WHEREAS, The Michigan State Medical Society has received no word nor has it any other evidence that the Board of Trustees of the American Medical Association has considered or acted on the report transmitted in February 1934; therefore be it

Resolved, That in order to avert a repetition in the United States of the disastrous consequences that attended the adoption of health insurance in England, the Speaker of the House of Delegates of the American Medical Association appoint a committee to investigate and consider the policy of the Association toward health insurance and present a report to the House of Delegates.

Dr. Van Etten moved that the first section of the report, dealing with the resolution on health insurance submitted by the Michigan State Medical Society, be adopted. The motion was seconded by Dr. Carl F. Moll, Michigan, and Dr. C. F. Gorsline, Michigan, and carried.

Section 2 of the report, referring to the criticisms of policy and the sincerity of officials of the American Medical Association, was adopted on motion of Dr. Van Etten, seconded by Dr. L. J. Hirschman, Michigan, and carried.

On motion of Dr. Van Etten, seconded by Dr. Joseph F. Smith, Wisconsin, and carried, the third section of the report, relative to the statement of the chairman of the Board of Trustees reviewing the action of the House on the question of health insurance, was adopted.

Dr. Van Etten moved that section 4 of the report, dealing with the pamphlet entitled "Sickness Insurance Problems in the United States," be adopted. The motion was seconded by Dr. Arthur C. Morgan, Pennsylvania, and carried after discussion by Dr. Julius B. Harris, California, Dr. William C. Woodward, Director of the Bureau of Legal Medicine and Legislation, Dr. Walter E. Vest, West Virginia, and Dr. Holman Taylor, Texas, in which it was agreed that the words "legally qualified doctor of medicine" should be substituted for the word "physician" in the third principle.

On motion of Dr. Van Etten, seconded by Dr. Arthur C. Morgan, Pennsylvania, and carried, the report, as amended, was adopted as a whole.

By Mr. Levin:

Q.—On the bottom of Government Exhibit 30 appear certain initials of the writer, and I take it of the stenographer. Will you tell the jury what those initials are and the names of the persons for whom the initials stand. First the initials of the writer.

A.—I think the writer is Dr. C. M. Peterson.

Q.—Do you know who Dr. C. M. Peterson was at that time?

A.—I can't say that I do.

Q.—Do you know whether he was connected with the American Medical Association?

A.—I know he was associated with the American Medical Association.

Q.—Do you know whether he was identified with the Council on Medical Education and Hospitals?

A.—I am not certain; I think he was.

Q.—Do you know who the secretary of that association was at that time?

A.—Dr. William Dick Cutter.

RE-CROSS EXAMINATION

By Mr. Leahy:

Q.—In your letter of December 14, you asked for the requirements or regulations, did you, governing hospitals? For the hospital staffs?

A.—Yes, sir.

Q.—I notice in the blue sheet, "Enclosed are the regulations": Where are they?

A.—I don't know.

Q.—Were the regulations enclosed with the letter?

A.—I can't remember.

Q.—You don't know where they are now?

A.—I do not.

Mr. Leahy:—That is all.

THE COURT:—Those letters will be admitted.

TESTIMONY OF DOROTHY EVERETT

DIRECT EXAMINATION

Dorothy Everett, Chevy Chase, Maryland, was employed by the District Medical Society, from February, 1924, to Sept. 29, 1938 as clerk and stenographer.

She identified correspondence of Drs. Conklin, Hoce, Neill, and Sprigg.

Mrs. Everett also took notes of meetings to get the gist of the conversations, that is, of the business sessions.

THURSDAY, FEBRUARY 13, MORNING

TESTIMONY OF DOROTHY EVERETT (Resumed)

Mr. Kelleher:—Your Honor, in order to expedite the introduction of these documents through this witness, we have now given photostatic copies of the documents which we intend to offer, to Mr. Leahy, and if it is agreeable with your Honor we would like to have the witness identify the originals and I will hand them to you, which will permit your Honor to read the document while counsel for the other side is examining it.

THE COURT:—Very well.

The witness identified letters further including:

Circular letter 7/29/37 from Dr. Conklin
Letter 11/5/37 Neill to Warfield
Letter 12/10/37 Hoce to D. C. Medical Society
Letter 2/25/38 Conklin to Hoce
Letter 5/18/38 Hoce to Sprigg
Letter 5/14/38 Hoce to Tribble
Letter 5/31/38 Conklin to Tribble
Letter 6/7/38 Sprigg to Tribble
Letter 11/10/37 Hoce to Lee
Letter 11/22/37 Hoce to Lee
Letter 11/19/37 Lee to Hoce
Letter 11/24/37 Spriggs to Lee
Letter 11/27/37 Hoce to Scandiffio
Letter 11/18/37 Neill to Scandiffio
Letter 11/10/37 Hoce to Scandiffio
Letter 11/22/37 Hoce to Scandiffio
Letter 11/24/37 Spriggs to Scandiffio
Letter 1/29/38 Conklin to Blair
Letter 1/27/38 Blair to D. C. Medical Society
Letter 1/29/38 Conklin to Warfield
Letter 11/25/37 Conklin to Warfield
Letter 9/13/37 Conklin to Woodward

CROSS EXAMINATION

By Mr. Leahy:

The cross examination covered the nature of the records, the fact that Mrs. Everett occasionally had a substitute; meetings were held in a large auditorium.

TESTIMONY OF MICHAEL DAVIS

DIRECT EXAMINATION

Michael M. Davis stated he is a doctor of philosophy, graduate of Columbia University, in 1906.

From 1910 to about 1920, he was in charge of the Boston Dispensary, a large clinic with a small hospital. In 1920, he returned to New York City and was chairman of a committee on dispensary development, which was financed by a grant from the Rockefeller Foundation, to improve the standards of clinics and dispensaries in New York, and throughout the country. He was also a consultant in hospital organization, and made studies of hospitals and clinics in different cities. He was continuously occupied with that work, giving it all his time in the latter part of the period from 1925 to 1929.

Q.—Briefly, what is a consultant on hospital organization?

A.—A consultant on hospital organization; well, in that capacity I would call, invited by individual hospitals or community chests, or other organization; I would go to a city, Cleveland, New York, for example, and study the needs of the city; its hospitalization needs; whether the present existing hospitals were sufficient; whether additional hospitals and clinics were needed; make a report to the local organization as to what was needed, if anything; make a general study of the entire subject in so far as it related to that particular locality.

Q.—During the period while you were with the committee on dispensary development did you organize any pay clinic?

A.—Yes, I organized a pay clinic, which I might explain, is a clinic for people who can pay for the care they get, for the medicines, et cetera; who can pay a fee, including payment to

the doctor in the clinic; I organized a small one in Boston and a larger one in New York, under the auspices of the Cornell Medical College.

He remained with the committee on dispensary development until the beginning of 1927, and until 1929 was on a consultant basis. In 1929 he went to Chicago to be director for the Medical Service of the Julius Rosenwald Fund, a philanthropic foundation, established by Mr. Julius Rosenwald, the late president of Sears, Roebuck Company, for the welfare of mankind. The purposes of the Foundation were to give money to worthy causes within the field of the Foundation and designated for its activities.

Q.—Is it limited to the field of medicine?

A.—No, it is, or I should say, its main field was Negro welfare, Negro education; Negro health in the South. The medical side was secondary, although a fairly important part of the Fund's work.

Q.—Did you tell us what your position was with the Julius Rosenwald Fund?

A.—I was in charge of all their medical activity, that is to say, in making grants of any money for any medical purposes we thought worthy. Our business was to make a study of the desirability of making a grant where it was applied for and I was also responsible for making studies of medical development generally, and directly for the Funds in the field that is to be expended or were to be expended in the field of economics of medicine, or medical economics; that is the cost of medical care.

Q.—Did you teach at the University of Chicago?

A.—Yes, for most of the time from 1931 to 1936 I held a teaching position on the faculty of the University of Chicago, teaching a course on "Social Aspects of Medicine in the Development of Sociology"; and I also took charge of a course in hospital administration to teach men and women the management of hospitals. That course was started in the University of Chicago about 1933, and continued there while I was at that institution, and, thereafter by some one else.

Q.—During that period while you were with the University of Chicago, did you sponsor an annual institute for the American Hospital Association?

A.—It ran an annual institute which I was in charge of, the American Hospital Association; the institute being designed to help men and women who were already in charge of hospitals to improve their knowledge, by bringing them together for meeting and discussion, two or three times yearly.

Q.—Are you still with the Julius Rosenwald Fund?

A.—I am not with the Fund. I am working with a committee, to which the Fund has granted money; so while I am not directly with the Fund, I am with this committee which is operating with the assistance of the Fund.

Q.—What is the name of that committee?

A.—Committee on Research on Medical Economics.

Q.—Did you ever serve on any committee with Dr. Hugh Cabot?

A.—Yes.

Q.—Will you please tell us the name of that committee?

A.—A committee for the study of group medical practice, which Dr. Cabot and I and several other men were members of; the active work having been done a year, two years ago; about a year ago. The committee's work was organized for the purpose of studying group medical practice, and its chief task was to prepare a statement of principles under which group practice should be conducted.

Q.—You have stated that you made, as a hospital consultant, you made certain studies of hospitals in various large cities of the United States. Will you tell the jury the nature of those studies?

A.—The studies were for the purpose usually of finding out the needs of the cities; their need for additional hospitals; the adequacy of the hospitals; the extent to which they were used, and in some institutions the study might be asked by a single institution where the board of trustees wanted a study made to determine just how that hospital was being run and whether its management or organization could be improved in certain ways. Some studies were also made for the purpose of studying enlargements of any existing buildings, and extensions of facilities offered.

Q.—Did you in the course of those studies familiarize yourself with the organization of staffs of hospitals?

A.—The organization of hospital staffs, I have to do that, to familiarize myself with every phase of that in order to make such studies.

Q.—Will you also tell us whether you were affiliated with any national organization of hospitals?

A.—I have been a member of the American Hospital Association for about 25 years, or more; have been a Fellow of the American Public Health Association; have been very active in the American Hospital Association; was chairman of their council for the years 1935 and 1936, and then just finished a three-year term as chairman of a committee on education. I have been chairman of a committee of the American Public Welfare Association, and have been active in the American College of Hospital Administrators, which is an organization for the training of hospital administration. I am an honorary Fellow of that organization.

Q.—Will you tell us whether you have written anything for publication on hospitals and medical care?

A.—I have published a number of books on the subject. A book in 1907 on dispensaries; a larger book in 1937 on clinics and hospital and health matters dealing with their management and organization. Then several books on the cost of medical care, "Paying Sickness Bills" in 1931; a volume in which I collaborated with Dr. Rowland, in 1932; a book on public medical services in 1937; a book on hospital administration as a career in 1929. I have written a large number of articles for professional and lay journals on hospital subjects and the cost of medical care, and related matters.

Q.—Now, I should like to ask you a few questions on hospital matters. Will you compare first the value and importance of hospitals as of today with those of such hospitals in the past?

A.—Yes. The hospitals are very much more important today than they were 60 or 70 years ago; in 1940, as compared with 1870. In 1870 the population of the United States was 40,000,000 persons. At that time there were approximately 50,000 hospital beds in the whole country. In 1940, the population was 133,000,000, and the number of hospital beds 1,200,000. That means that during that period, while the population of the country grew about three and one-third times the number of hospital beds increased twenty-four times. There were approximately one and a quarter beds per one thousand of population in 1870, and somewhat over nine hospital beds per 1,000 in 1940.

Q.—Dr. Davis, do you know approximately what the investment in hospitals is today?

A.—The amount of investment in hospitals and clinics and their subsidiary buildings is somewhere between three and a quarter and three and a half billion dollars in the United States.

Q.—What is the source of that investment?

A.—The great bulk of that money, that investment in the hospitals has resulted from gifts or grants either by private individuals, or local and state bodies, federal government to some extent, minor extent, putting tax money in equipment of hospitals.

Q.—Are you familiar with the extent to which doctors are utilizing these hospitals today?

A.—The figures, the figures of the American Medical Association show that approximately two thirds of all doctors in the United States have some affiliation with a hospital; that is, the large majority have affiliation with hospitals.

Q.—Do you know whether doctors consider affiliation with hospitals of value to them in the practice of their profession?

A.—They consider it very valuable and important. Of course, in surgery, for instance, the connection with a hospital, which entitles a surgeon to treat and operate on his patient in a hospital, is practically essential to the conduct of his practice. It is also very important to any physician otherwise; whether he be a medical man or a surgeon.

Q.—Will you tell us what kind of hospitals there are from the point of view of service?

A.—Hospitals, general hospitals, which treat any kind of acute ailment or illness brought to them; and special hospitals, such as mental, tubercular, eye and nose and throat, and maternity; such hospitals take only those cases specified.

Q.—And the latter type of hospital is called a special hospital?

A.—Yes.

Q.—I should like now to have you describe about how hospitals are organized, first. Who handles the financing and business affairs of hospitals?

A.—The hospital usually, not always, but as a rule, hospital finances and the ownership of the property is vested in a lay board or committee, usually a board of trustees, sometimes the governing body of a church, which holds title to the property and is responsible for the finances; the business management of the institution.

Q.—What are the duties of such a lay body?

A.—It is the owner and controller of the hospital. Its duties are to manage the hospital property, to see that it is properly conducted; and its duties are also to appoint the medical staff, that is, the physicians and surgeons, who do the actual medical professional work of the hospital, for which it was established.

Q.—Is it possible for such a lay body to handle the finances of the institution, to handle the management of the business end of it, without interfering with the medical offices of the hospital, the doctors?

A.—They do it all the time. The typical American hospital is run in friendly cooperation with the medical staff, composed of the doctors appointed by the board, and the lay board; and with this body and its executive officer, or superintendent, who is the business executive or general manager of the hospital for the governing body.

Q.—You referred to the medical staff. I assume you mean the regular or attending medical staff?

A.—Yes, the regular or attending medical staff which is appointed by the lay body, and who have the responsibilities incident to the professional work, the medical work in the hospital.

Q.—Will you be a little more specific about the duties of the medical staff?

A.—Yes, the medical staff consists, not only of a certain number of physicians and surgeons who are appointed as individuals and who are given the privilege of treating patients in the hospital; it is also an organization of physicians required by national professional standards to provide medical care, so that the attending staff has its own organization, let us say, a governing body for its own professional work, and, through that body, studies and controls the professional standards of the hospital, subject, of course, to the oversight of the lay body, which has the legal control of the property of the institution. A wise lay body does not interfere with the professional work in the hospital. That is a matter which is, and properly should be, left to members of the medical profession.

Q.—Who supervises the charity cases that come to the hospital?

A.—The charity work for hospital patients treated free by the physicians is controlled by the governing board who must decide how much charity work they can do. The professional staff give each a part of their time to caring for free patients in the wards of the hospital.

Q.—And do they also supervise the work of the outpatient department in the hospital if it has one?

A.—The outpatient department for people who are able to be up and about and come to the institution for care without going to bed is supervised again by the lay governing body in general and actually controlled and managed by the physicians who are in the clinic of the hospital and do the actual work in caring for the sick.

Q.—Dr. Davis, are the regular staff of the hospital paid a salary?

A.—In some cases, yes, but as a rule most of the staff are not paid a salary. They get their remuneration by having private practice in the hospital without being paid by the hospital, in most instances.

Q.—Who pays the medical staff?

A.—If the medical staff are paid they may be paid by the hospital, but that is in the minority of cases. The attending physician or surgeon who carries on the private practice is paid directly by the patient himself and by the private arrangement between the patient and physician who cares for him in the hospital.

Q.—Dr. Davis, is membership on the regular staff of the hospital of any value to a doctor?

A.—Membership on the regular staff of the hospital is of much value to the doctor, because it gives him definite prestige, which helps his whole practice.

Q.—How does that prestige help him?

A.—Connection with a hospital is regarded in the medical profession and also by a large portion of the general public as something that is a sign of good standing in the medical profession. A physician who is a member of a good hospital staff has a definite prestige as a result of such background.

Q.—Doctor, I assume you have been speaking during your testimony about the regular or attending staff?

A.—Yes.

Q.—Do the hospitals also have what they call courtesy staffs?

A.—A great many hospitals have in addition to their regular staffs, a courtesy staff, which may be small or may be very numerous, a courtesy staff of physicians who are given by this appointment of the lay board, the privilege of treating patients in the hospitals under certain restrictions which may be laid down, but who are not members of the hospital organization and do not share in the professional responsibility and standards of the hospital.

Q.—Does the courtesy staff share in any of the affairs of the hospital?

A.—As a rule the members of the courtesy staff are invited to staff meetings in which disease problems and cases are discussed.

Q.—And when they are invited to a meeting, it is for the benefit of the doctor who enjoys that courtesy staff privilege?

A.—It is something he gets through being a member of the courtesy staff.

Q.—Dr. Davis, you stated that the lay board appoint the members of the courtesy staff. What function does the regular medical staff play in the appointment of the courtesy staff?

A.—The regular staff, usually through its staff committee or the board chosen by it, usually nominates or advises the lay board as to the physicians who should be appointed on the courtesy staff.

Q.—And as a rule, or as a matter of general practice, does the lay body generally follow the recommendations of the regular medical staff?

A.—They usually follow the recommendations of the medical staff. They appreciate the qualifications of a physician can best be determined by other physicians who act responsibly for the lay board.

Q.—Doctor, excluding emergency cases, can a doctor use hospital facilities in the United States except as a member of the regular or courtesy staff of a hospital?

A.—By and large, no, he may not. There are some hospitals which are open to anybody, but those are exceptions.

Q.—Dr. Davis, are you familiar with whether hospitals are inspected and approved by organizations in the country?

A.—Yes. Necessarily, visiting and studying hospitals, I have had to be familiar with those approval systems. The American Medical Association inspects a certain number of hospitals to determine whether they should be approved to receive interns for training.

Q.—What other organization inspects and approves hospitals?

A.—The American College of Surgeons also inspects hospitals and has an approved list of hospitals that have passed its inspection as having met its standards. There are various other bodies which in some of the states under the state law inspect hospitals; some of the nursing bodies in some of the states inspect hospitals to determine whether they are of the proper standing to train nurses.

Q.—Dr. Davis, are you familiar with the American Medical Association hospital register?

A.—Yes. The American Medical Association publishes a list of registered hospitals which is, on the whole, the most complete and authoritative list of hospitals we have.

Q.—Is registration of this register of hospitals of value to a hospital?

A.—A hospital which is not on the registered list of the American Medical Association is definitely regarded, as a rule, as suffering from the exclusion. Those hospitals are generally regarded as being inferior to hospitals that are on the registered list.

Q.—Is there any limitation in the size of the hospital as to whether it will be registered in the A. M. A. registry?

A.—The size of a hospital does not bear on inclusion in the registry list. It does bear on the list for approval for training interns.

Q.—All right. Let us get to that matter. Will you tell us, Doctor, briefly, what an intern is?

A.—An intern is a physician who has just graduated from medical school, received his four-year course, and who is taking one or more years learning in hospital work in a continuation of his training period. In a hospital he has opportunity to work with sick people under the direction of the staff.

Q.—And is an internship a part of a doctor's education today?

A.—The internship has come to be regarded as an essential part of the doctor's training. One or more years' internship in a hospital is now regarded as an essential part of a doctor's training.

It is a legal requirement in some of the states but is regarded as a professional requirement in some states.

Q.—Dr. Davis, what is a resident?

A.—A resident is one who is working in a hospital but who is further along and is working in a specialty, surgery or eye work or nose and throat work. He is working to train to practice in a specialty.

Q.—Dr. Davis, do most of the hospitals pay interns for their services?

A.—A good many hospitals pay interns but the payment is only nominal. It ranges from \$15 to \$25 a month.

A good many don't pay anything at all. The training is such that he seeks the training with little or no compensation. He is given his lodging and maintenance while he is in the hospital.

Q.—What does the hospital receive in return for training the intern?

A.—The hospital gains a certain amount of actual services in caring for sick people from the work of the intern. He is an unpaid and very hard worker during the period of his internship. He is learning by working very hard.

A hospital also gains a certain amount of prestige from being regarded as sufficiently good to train interns.

Q.—Dr. Davis, does the A. M. A. approve hospitals for the training of residents as well as interns?

A.—Yes.

Q.—Will you tell us now whether the A. M. A. considers the size of a hospital in passing on approval of the hospital for the training of interns?

A.—Yes. The general standards are a hospital which has as many as one hundred beds and as many as seventy-five patients. I believe there are exceptions to that but in general that is the size, the smaller hospitals generally being regarded as not being sufficiently large to give valuable training to an intern.

Q.—Dr. Davis, what is the importance of A. M. A. approval so far as the ability of the hospital to obtain interns is concerned?

A.—Approval by the American Medical Association for receiving interns is extremely important to a hospital. A hospital which does not have that approval will generally find it impossible to obtain young men who will be willing to go there and work as interns. So that if a hospital wishes to have interns, and most hospitals wish very much to have interns, it is extremely important from their point of view that they have approval.

Q.—What is the effect on the prestige of a hospital of the withdrawal of approval for intern training?

A.—If a hospital would lose its approval for receiving interns and it could no longer get interns willing to come to it and work there for their training, it would lose, in the first place, the services of these young men.

If it were to continue, generally speaking, the same quality of service to the patients, it would have to employ them, on salary; not a nominal amount but a salary; young medical men to do the work which the interns would do if they were there. So there would be a substantial financial loss to the hospitals if that approval were taken away.

And the hospital also loses prestige. Physicians on its regular staff would feel that the hospital had suffered substantially. They might be inclined, some of them, to shift their patients to other hospitals.

Q.—And why will graduates from medical schools refrain from taking their internship at hospitals not approved by the A. M. A.?

A.—The young medical man is keen to get the best training that he possibly can. He seeks an internship in a place which will give him not only good training as he understands it, but also will give him good standing in the profession, so that when he gets through the internship and into practice he will be able to have the good will and good opinion of other physicians; and if he has had internship in a hospital which is regarded as not up to form, it is a definite handicap to the young man if he has had his training there.

Q.—Dr. Davis, would it ordinarily make any difference in the effect upon the hospital of the loss of approval if the reason for the approval was withdrawn?

A.—Well, if the reason were publicly known and clearly defined, the local community might consider that, but in general the reasons are not likely to weigh with a great many people, doctors and lay people. The mere fact that the hospital is not on the approved list is going to be a handicap to it.

Q.—And will have the effects which you have described?

A.—Yes.

Q.—Dr. Davis, were you a member of the committee on the costs of medical care?

A.—Yes, sir.

Q.—Will you describe the formation of that committee, please? (The witness then described the organization, work of and results of the Committee on the Costs of Medical Care.)

The chairman was Dr. Ray Lyman Wilbur. The committee originally was formed of fifty members. It ended its fifth year with forty-eight, because of deaths and unfilled places. Of the forty-eight members twenty-five were doctors, one of the twenty-five being a dentist as well as a doctor. Fourteen of the twenty-five doctors were engaged in private practice. Others on the committee included men engaged in public health work who are not physicians, as well as several physicians who are engaged in public health work; several prominent sociologists and economists; There were three dentists on the committee, two nurses; two or three men connected with pharmacy or with

the drug business; and a number of people engaged in social or civic work, and men of general public interest. Nobody on the committee represented officially any organization.—

A.—The committee of the costs of medical care made a series of studies of the amount of service, the cost of service, and various other subjects, and published reports of the findings of the studies. The committee also after it had completed its studies made recommendations as to what should be done to make medical care more available.

One very important study was a study made of about nine thousand families from all parts of the United States to find out how much sickness they had in the course of a year; how much care they had for the sickness which they experienced; and what the care cost them.

This study was carried on by having each family visited approximately every six weeks or two months throughout the whole year by a trained person who found out the general facts about the family, what sickness they had had, what care they received, and what they had spent for their care.

The committee made studies of the medical care in certain communities. It studied the care in Philadelphia and Detroit. It studied some rural areas in the South and a county in Indiana and a county in California.

It made a study as to the incomes of physicians, the incomes of dentists, in cooperation with the American Dental Association.

Finally the committee made a study of new plans of medical care; it made a study of some prepayment plans where the employees of a large corporation get medical service and pay for it on a weekly pay roll deduction basis.

It studied plans of medical care furnished by universities for their students; it studied the medical care of the Army, at one of the large Army posts.

So it became familiar through its reports with various new plans and types of organized schemes of medical care.

There was an executive committee of eight persons which supervised every study. Technical people were employed to carry on the details. That staff was closely supervised by the executive committee, which planned the studies with the staff and which read and criticized the studies as the material came in from the field, with the members of the staff; the executive committee meeting every month.

The nine thousand families were selected so that they would represent in communities of different sizes all of the types of income groups, some people who were very poor, on relief, up to comfortable incomes. They were also selected from different parts of the country and different sizes of family.

The selection was made by selecting different types of community and then turning to the local people for help in selecting the family. A family known to be of a certain economic type were visited routinely. In other cases they were selected by those who were able to pick the families or advise the committee they were picking the proper families.

Each of the families was visited not more than a two months period to not more than a twelve weeks period, so the facts of the family were obtained.

The families were classified as to income under \$1,200, under \$2,000, \$2,000 up to \$3,000, \$3,000 to \$5,000, \$5,000 to \$10,000, and \$10,000 or over.

Q.—Will you tell us approximately how many individuals were involved in these nine thousand families?

A.—Approximately thirty-eight thousand individuals.

Q.—What conclusions did the committee on the costs of medical care reach concerning the relation between the amount of medical care received by the families and their incomes, as a result of the studies of these nine thousand families?

A.—Roughly, the more income families had the more medical care they received. We can measure the medical care in terms of the number of visits from or to a physician during the course of a year. For families of income under \$1,200 a year it showed an average of one and nine-tenths visits from or to a physician during the course of a year. The number of calls or visits from or to a physician increased with each increase in income, until at the top level families of income of \$10,000 and over received four and seven-tenths visits from or to a physician during the course of a year. So there was a steady progression.

Another way of measuring the amount of care, of course, is in relation to hospitalization. The average amount of hospitalization is measured in terms of the hospital days; that is, a person who goes to a hospital and spends one day there, that is recorded as a unit of hospital service, one patient-day's care. Now, in that unit we found a very interesting and surprising thing with families of the lowest income, some of whom were on relief. The average amount of care received by an individual in a hospital during a year was nine tenths of a hospital day; a little less than one day's care. When we moved to the

next group, \$1,200, the amount of hospital care dropped to about sixty-six one-hundredths; that is about two thirds of a hospital day instead of nine tenths. Then, after that, in general, the amount of hospital care received rises with income, reaching about one and two tenths hospital days' care for the families of incomes of \$10,000 and more; hospital day's care for the person in that group.

There were a substantial number of families, not quite half the total number, of individuals, who received no medical care. Of course, it is clear that there are two reasons for that; one is that they are not sick; the other is that they were sick but didn't get care. So the percentage of persons not receiving care throughout the year was about 47 per cent of the total number of persons. That percentage, however, was less among people with larger incomes than among people with smaller incomes, so there again was a shift as we went up in the income scale, the proportion of people who received no care, medical care, during the year, grew less, substantially less. Among the highest income group only about one person in seven went without any medical care during the year; whereas, of the lowest income group about half went without any care.

By Mr. Kelleher:

Q.—Did the study consider whether there was any reason why there should be less sickness in the low income groups than in the high income groups?

A.—This study did not make a particular investigation of that point.

Q.—Have you made any investigation of that point?

A.—I have not personally. I am familiar with studies which I regard as authoritative which have made investigations of that point.

Q.—What have those studies shown?

Mr. Leahy:—Let us see what the studies showed.

By Mr. Kelleher:

Q.—What are the studies?

A.—After the committee on medical care a number of additional studies have been made.

For example, several studies conducted by the Milbank memorial fund entitled "Health and the Depression"; then another study conducted in 1935 and 1936 by the Government through the United States Public Health Service, usually called the National Health Service.

Those studies led to certain conclusions on the matter you have asked me. I regard those studies as authoritative.

They reached the conclusion that there was more sickness generally among people of small income than among people in comfortable circumstances. The difference isn't as great as the difference in income, but on the whole, people in the smaller income groups have more sickness; as shown by these studies. The study of these nine thousand families led to the conclusion, which we all knew in advance, that sickness falls unevenly, and its cost likewise. It did, however, give us some figures showing how unevenly the burden does fall. For instance, in the income group of between twelve hundred and two thousand a year about 5, a little more than 5 per cent of the families, had relatively large sickness bills running through—in the year, running to a total of \$250 or more; and that 5 and a fraction over per cent of the families had spent for sickness 32 per cent of the total amount spent by all the families. If we compare that with the families who had little sickness and low costs therefore, we find that almost 70 per cent of the families spent about 24 per cent of the total; whereas, a little over 5 per cent of the families spent 32 per cent of the total. So that a relatively heavy burden falls on a small proportion of the families; who, of course, cannot predict in advance whether they are going to be the lucky or unlucky ones in most of the cases.

About 10 per cent of all the families bear about 41 per cent of the total burden of sickness costs during the year. On the other hand, 58 per cent of the families bore only 18 per cent of the burden.

A large number bore a small burden and a small proportion bore a heavy burden.

The committee made a number of recommendations, the committee making a main report signed by thirty-five of its members, and a minority—several minority reports with differing recommendations being made. The committee was not unanimous in its recommendations.

There was no criticism of the study in the minority report but the recommendation for action differed. The thirty-five included seventeen physicians.

Of the seventeen, I think nine were in private practice. The others were physicians in hospital and university and other salaried positions.

The main recommendations of the majority were to develop the medical care on a group payment, that is, on a prepayment basis, preferably in association with group medical practice.

The main minority report criticized group payment as tending towards undesirable contract practice and various evils and criticized group medical practice; so that the main minority report did oppose these recommendations.

Defendants West and Christie were among the nine signers of the main minority report.

A final report of the committee was published called "Medical Care for the American People," at the end of 1932.

FEBRUARY 13, AFTER RECESS

TESTIMONY OF MICHAEL M. DAVIS (RESUMED)

THE COURT:—You may proceed, if you are ready, Mr. Leahy. I think Mr. Kelleher is through.

Mr. Kelleher:—Yes, I am, your Honor.

Mr. Leahy:—If your Honor please, if the Government is through with this witness the defense feels that it is not necessary to go into any cross examination, and we will ask that the witness be excused.

Mr. Kelleher:—If your Honor please, I offer in evidence portions of Proceeding of the House of Delegates of the American Medical Association, marked in red pencil on pages 21, 51, 55 and 59 of the proceedings for 1933.

Mr. Kelleher:—I am now reading from the proceedings of the House of Delegates of the American Medical Association, 84th Annual Session held at Milwaukee, Wisconsin, June 12 to 16, 1933 (reading):

"RESOLUTIONS FROM CONSTITUENT STATE MEDICAL ASSOCIATIONS REQUESTING NATIONAL MEDICAL ORGANIZATIONS TO DECLARE OPINIONS ON MEDICAL PRACTICE THROUGH APPROVED CHANNELS

The following resolution adopted by the board of trustees of the Medical Society of the State of Pennsylvania, has been transmitted to this Board:

WHEREAS, There have been formed important national organizations of physicians, specialists, other than the American Medical Association, and

WHEREAS, Such organizations fundamentally formed for scientific purposes have from time to time publicly expressed opinions concerning the entire practice of medicine, especially in its social and economic relationships, and

WHEREAS, An unusual emphasis on the social and economic position of medical practice has recently been precipitated by the published report of the national committee known as the Committee on the Costs of Medical Care; be it

Resolved, That, in the interest of the welfare of the public and the maintenance of the most serviceable form of medical practice, the proper representatives of the American Medical Association request other national medical organizations whose qualifications for membership include membership in the American Medical Association to declare publicly their opinions on general social, legislative, and economic relationships of medical practice only through approved channels of the American Medical Association. To this end the Board of Trustees of the Medical Society of the State of Pennsylvania pledges its own efforts and influences to bring about this most desirable point of view in the minds of the members of the Medical Society of the State of Pennsylvania, who are also members or Fellows of the other organizations referred to. They also respectfully request the Board of Trustees of the American Medical Association to bend every effort to accomplish this purpose throughout the Association at the earliest possible moment in order that the same evolutionary progress of medical practice may not be disturbed by social experiments which endanger the health and welfare of our citizenship, and which have proved a pernicious health influence in other nations.

A similar resolution adopted by the council of the State Medical Society of Wisconsin has also been submitted. (52) (55)"

The proceedings show that the resolution was adopted.

The next is a resolution endorsing the minority report of the Committee on the Cost of Medical Care (reading):

"RESOLUTIONS ENDORSING MINORITY REPORT OF COMMITTEE ON THE COSTS OF MEDICAL CARE

Dr. Henry C. Macatee, District of Columbia, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The Medical Society of the District of Columbia has endorsed the Minority Report of the Committee on the Costs of Medical Care, and has undertaken to engage in an intensive campaign to educate and inform its constituency regarding the socio-economic aspects of medical practice, with a view to the maintenance of high ethical standards and the preservation of professional ideals:

(a) By the dissemination of literature;

(b) By the organization of a speakers' bureau for the purpose of presenting various aspects of the subject to the membership;

(c) By the organization and conduct of study groups; and

(d) By the employment of such other means as may from time to time be deemed expedient for that purpose; and

WHEREAS, The Medical Society of the District of Columbia has by resolution instructed its delegate to endeavor to secure the support of the American Medical Association both of the Minority Report of the

Committee on the Costs of Medical Care, and of the society's plan for promoting harmony of professional opinion and action on the socio-economic aspects of the practice of medicine;

Resolved, That the House of Delegates of the American Medical Association endorses the Minority Report of the Committee on the Costs of Medical Care as expressive, in principle, of the collective opinion of the medical profession; and, in order to clarify and harmonize the thinking of the individual members of the profession on the general subject of the said report, and on allied subjects.

Resolved, That the Board of Trustees be requested to undertake 'the sponsorship, direction and active participation by the American Medical Association in an intensive campaign to be conducted in cooperation with its constituent bodies for the purpose and along the lines indicated in the first paragraph of the preamble to this resolution. (58) (59)"

The subsequent portions of the proceedings show that that resolution was adopted by the House of Delegates.

TESTIMONY OF JOHN DONALD LAUX DIRECT EXAMINATION

By Mr. Kelleher:

John Donald Laux was employed by the American Medical Association. His present address is Washington Boulevard Building, Detroit. He ceased employment in July 1939, after being employed with the American Medical Association four and a half years, from 1934 to 1939. He was a research assistant to Dr. Leland in the Bureau of Medical Economics. He had charge of studies in subjects such as insurance problems and various problems in medical economics, group hospitalization, handling correspondence concerning those matters. One of the duties was in connection with organized payments for medical service, and that involved medical service plans. He answered inquiries concerning various plans of that character, working directly under Dr. Leland.

Q.—I show you Government Exhibit 85 for identification, which purports to be a carbon copy of a letter written by you to Dr. John D. Sears, dated Feb. 26, 1937. Will you identify that as a copy of a letter which you wrote?

A.—That is correct.

Mr. Kelleher:—I offer Exhibit 85 in evidence (handing document to the court). And, your Honor, may I also offer at this time Exhibit 86 for identification, which purports to be a letter from John D. Sears to Dr. Morris Fishbein dated February 23, 1937, to which letter Exhibit 85 is the reply (handing document to the court).

Mr. Leahy (after a pause):—Is your Honor waiting for an expression?

THE COURT:—Yes.

Mr. Leahy:—Exhibit 86 I do not think is proper at all, your Honor. It is a letter of inquiry dated Feb. 23, 1937, directed to Dr. Morris Fishbein.

Mr. Kelleher:—It is offered solely to explain the reply, your Honor, and for no other reason.

Mr. Leahy:—There has to be some proof.

THE COURT:—How about 85?

Mr. Leahy:—If I could ask the witness just a couple of questions I would perhaps withdraw any objection.

THE COURT:—Very well.

By Mr. Leahy:

Q.—Did you talk with Dr. Leland about the contents of this reply or of this letter which you wrote on February 23?

The Witness:—I could not say whether or not as to that particular letter, I had conferred with Dr. Leland before the reply was made, but we had discussed types of replies of this nature as to the general content of the letter.

By Mr. Leahy:

Q.—But you do not know whether or not you discussed this particular letter of February 23 with him at all?

A.—No; prior to that, no, probably not. That would be my opinion.

Q.—You were just an employee, were you, in Dr. Leland's office?

A.—Yes.

Mr. Leahy:—I object to the offer as being against the A. M. A.

THE COURT:—I think there is one other question that would be pertinent. State whether or not the contents of this letter are in harmony with the views which you say Dr. Leland approved.

The Witness:—I believe that the contents of the letter are generally from the results of studies we had made, and most of those studies were conducted fairly independently. We obtained data from plans throughout the country.

THE COURT:—I do not think you quite got my question. In response to Mr. Leahy's question you said that although you did not know that this letter itself was written in collaboration with and with the approval of Dr. Leland, its general contents

were of a nature which had been approved by him. I am not attempting to state your words, but that is the substance of what I gathered from your statement. Is that true?

The Witness:—I would not want to be certain on that, because he was a very vigorous taskmaster. Whether he would agree to every one of the statements, I would not say; but I think the general content was in accord with our conclusions as to the types of medical service plans. I don't know that he would agree with each one of the statements made.

By Mr. Kelleher:

Q.—When you say "our conclusions" whom do you mean?

A.—Mr. Simons and myself in conducting these studies would arrive at conclusions as to what the facts showed and would so interpret them. Frequently they were presented to Dr. Leland for his confirmation, and he would either agree or disagree that the facts should be so interpreted.

Q.—From your talks with Dr. Leland would you say that he approved of the substance of the letter giving your interpretations?

A.—I would say that he would tend to agree with the general implications of the letter; yes. Whether with the specific statements in the letter or not I do not know. I cannot recall an instance of that kind so far back.

THE COURT:—Did I understand you to say that this was the general type of letter which was sent in reply to inquiries of this sort?

The Witness:—Yes. That would be the general type of letter. We received inquiries from doctors asking for information about various types of plans, and we would give them replies usually pertaining to the particular plan.

THE COURT:—Was Dr. Leland familiar with this general type of letter which you were sending out?

The Witness:—Yes; that is true. He was generally familiar with the general type of letter we were sending out.

Mr. Leahy:—Is this offered as to Dr. Leland or as to the A. M. A.?

Mr. Kelleher:—Only as to the A. M. A.

THE COURT:—I think it is admissible.

Mr. Leahy:—I object to it as to the A. M. A.

THE COURT:—I think it is admissible as prima facie evidence against the American Medical Association. It may be explained, of course. If this gentleman was writing it without the approval or authority of Dr. Leland, and was expressing his own views, that may be shown. But prima facie it seems to me it is admissible against them. He was an employee and assistant to a general officer and he states that this does represent the general type of letter that was sent out with Dr. Leland's knowledge and approval concerning subjects of this sort. I think that is the substance of his testimony.

Mr. Kelleher:—Does that cover Exhibit 86, if your Honor please?

THE COURT:—I am speaking of Exhibit 85. I do not see the relevancy of 86.

Mr. Kelleher:—Your Honor, it shows—

THE COURT:—Yes; I know your explanation. But I do not think it is at all necessary, and I will sustain the objection to that. The letter is self explanatory.

Mr. Kelleher:—All right, your Honor.

The witness then identified letters as follows:

Letter 2/20/37 Laux to Sears
Letter 8/10/37 Laux to Palmer
Letter 11/30/37 Laux to Tibbals
Letter 1/12/38 Laux to Brown
Letter 12/8/37 Laux to Conklin
Letter 1/18/38 Laux to Christie
Letter 1/13/38 Christie to Leland
Letter 1/24/38 Laux to Hathaway
Letter 7/8/38 Laux to Rowe
Letter 7/6/38 Laux to Litman
Letter 7/12/38 Laux to Stanford

CROSS EXAMINATION

By Mr. Leahy:

Q.—Mr. Laux, you stated that you are employed in Detroit now?

A.—Yes.

Q.—In what capacity are you working?

A.—Director of Medical Service Plan; Michigan Medical Service.

Q.—Is that for the Michigan State Medical Society?

A.—Yes, it is a prepayment medical service plan sponsored by the Michigan State Medical Society.

Q.—And is that a constituent member of the American Medical Association?

A.—It is.

Q.—You are, or you were employed for four and a half years before that in Dr. Leland's office?

A.—Yes.

Q.—And your capacity or duties were such that you, when letters of inquiry were received you did the best you could to answer them?

A.—Yes.

Q.—And were many inquiries received?

A.—Yes, I believe the inquiries about medical service plans alone would constitute a thousand letters at least a year.

Q.—At least a thousand a year?

A.—Yes.

Q.—So that the letters which you were asked to identify represent but an extremely small proportion of the letters which you wrote?

A.—Oh, yes.

Q.—And in answering the letters did you collaborate personally with Dr. Leland?

A.—In only a very few instances was collaboration necessary, and that was usually a letter asking for some particular type of information for which we had not theretofore had inquiry.

Q.—And was its incoming mail quite voluminous?

A.—Yes, I believe the last year I was there the total volume was in excess of five thousand pieces. That is, answers out were five thousand.

Q.—And did the Bureau collect information generally about all kinds of practices of medicine throughout the United States?

A.—We conducted studies on various economic problems and plans by questionnaire, by personal investigation and by information sent in by physicians who were members of the American Medical Association. We collected a library on the economics of medicine, including these various plans, and prepared reports and published a brochure on these various topics.

Q.—And was that information solely for the medical profession, or was it for the public also?

A.—The public and the medical profession.

Q.—I notice on some of these letters that you have stated you are making enclosures of documents, "I am enclosing herewith"—let's take 101, that one you wrote to Dr. Stanford at Memphis, Tenn., where you said here, "Sent under separate cover," where you refer to certain documents, and informed him that these were being sent to him under separate cover. Did you send such documents?

A.—I presume so.

Q.—What was the nature of these documents in this particular case?

A.—That is a report which was prepared in the Bureau interpreting the principles of ethics of the medical profession in view of the economic problems which the profession faced, and indicating why adherence to such ethics was necessary, and their purpose.

Q.—And the Medical Service Plan. What would that be?

A.—It was a study of the various types of prepayment, various prepayment and postpayment plans, with a brief synopsis of such plans, their method and mode of operation.

Q.—There were many such plans?

A.—Yes.

Q.—How many?

A.—At one time I counted in excess of four thousand.

Q.—Throughout the country?

A.—Yes.

Q.—Those included prepayment and postpayment?

A.—Yes.

Q.—And what was this type of plan you refer to here?

A.—That was a plan or a study of a plan. That went through the county medical society; and the other organization it was a similar type set up with a little more in detail, regarding these various types of plans.

Q.—And also "contract practice," what was that?

A.—It was an analysis of a form of medical practice whereby doctors rendered service under contract to various organizations.

Q.—Would you say the Bureau had attempted to collect and distribute publicly in the shape of these studies and pamphlets a great many of such pamphlets or publications, of those which you enclosed were typical?

A.—Yes, in the years I was there there were thirty-five such reports, separate booklets, which were distributed as well as being contained in the pamphlet "Hygiene" which went to the doctors.

Q.—Were these reports which you collected and upon which you worked, Mr. Laux, in character or nature, a review of the various plans?

A.—Particular ones were, yes. For example, a recent report not mentioned there was the organization of medical service, which dealt with the various new types of development by pre-

paying medical service. It endeavored to analyze all the types of medical plans in existence in the country, to help persons to obtain medical service through prepayment or postpayment, or with the assistance obtained from government agencies.

Q.—Now, without taking up the time to go through these various letters which you have written, each one of those letters which you wrote and which you have just identified, were they prepared in good faith to supply information which you were asked to give?

Mr. Lewin:—I don't think they ought to be characterized in that fashion; they speak for themselves. The letters are going to be put in evidence.

THE COURT:—I think he may generally characterize or describe them; I think that will be fair. It doesn't negative anything that the letter itself says.

Mr. Lewin:—It seems to me to be—that they are the best evidence.

THE COURT:—He may state that generally without referring to any particular paper.

The Witness:—The answers to the letters and the reports which were prepared in the Bureau were always with the intention of conveying the facts, and in an endeavor to give the inquiring person information, accurate information, either adversely or favorably to what the type of plan inquired about was.

Q.—In other words, you, throughout your work in Dr. Leland's office endeavored to give accurate information in response to the letters which came to you and which you answered?

A.—Yes.

Q.—And your authority while you worked in the office of Dr. Leland was merely to answer these requests for information?

A.—Yes.

Q.—You didn't declare policy for Dr. Leland's office.

Mr. Lewin:—I don't think he ought to be asked a leading question.

Mr. Leahy:—On cross examination?

Yes.

Mr. Lewin:—Yes, on cross examination. This witness was an employee of the American Medical Association, and he is not such a witness that leading questions may be put to him on cross examination.

THE COURT:—Objection overruled.

By Mr. Leahy:

Q.—You had no authority to declare policies for Dr. Leland's office, did you?

A.—No, policies were decided on by the House of Delegates and the Board of Trustees of the American Medical Association.

Q.—Is that why you wrote in this particular letter,—I think it is Exhibit 89—that you wrote the last paragraph to emphasize what you have just told us?

A.—It is because frequently the requests would be received for information about types and plans which had not yet been brought before the House of Delegates and, consequently, it was necessary to say that "This information is given which you request and is confidential." We would advise them that until there had been received a full report concerning the plan and it had been acted upon by the House of Delegates we would be unable to take any official position with reference to the plan or type of practice.

Q.—And would you say in concluding, "Opinion is given merely as a business courtesy. No responsibility is to attach to the American Medical Association or its offices personally for the information herein given."?

A.—Yes.

Q.—Were you asked to produce these particular letters out of the many you wrote in a subpoena out of this court?

A.—The letters were taken from the files and photostatic copies were made of them. We weren't asked to locate any particular letters. I think the representative of the Department of Justice went through the files and took out what letters he thought were of interest to him.

Q.—And these particular letters which you have seen here were identified by you before?

A.—Yes, they were.

Q.—Can you give us any idea how many letters you wrote in the four and a half years?

A.—I judge about eight or ten thousand letters.

RE-DIRECT EXAMINATION

By Mr. Kellcher:

Q.—When did the prepayment plan with which you are now associated commence operation?

A.—In March, 1940.

Q.—In so far as the letters which have been offered through you criticize a particular plan, does that criticism expressed in these letters reflect the policy of the American Medical Association?

A.—The criticisms on the particular plans mentioned in those letters were in accordance with the policies advanced by the American Medical Association.

RE-CROSS EXAMINATION

By Mr. Leahy:

Q.—Let me be specific: let us take 89, which we had before. Wherever there is any expression of opinion contained in the letter is that expression given in accordance with what you stated in this letter of Nov. 30, 1937; that the opinion was given merely as a business courtesy?

A.—Yes, the endeavor was to give to the inquirer the facts as we had them in our files, that is about the particular type of medical plan. There was no particular reason other than that to give them the information as to what the plan was. If they asked whether such a plan was operating satisfactorily we tried to give them the information as we had obtained it through investigations or other information or data received through the members, or otherwise; often from those engaged in the plan or from members in the locality.

Q.—Now, you stated on the second page of your letter—the first page is an outline of the medical service plan at Trinity Hospital at Little Rock, Ark., is it not?

A.—Yes.

Q.—Now, where did you get your information about that?

A.—We had a rather complete report of some 48 pages made by an investigator who was there to study the plan.

Group Health Association, Inc. at Washington:—"The enclosed article prepared by Dr. Woodward, would probably give the information you want. As you know this Association was discussed rather extensively at the Secretary's Conference" and the Hospital Group, where did you get that? The Economy; and the Bassett; the Thompson Benefit Association, Brattleboro, Vermont: Where did you get your information about those?

A.—The Bassett Plan published a report on its experience over a period of three or four years. In addition we have considerable correspondence pertaining to it. The Economy was a rural medical plan; we had a number of pieces of correspondence from the doctor who was formerly in charge of that plan, and from others in the society. The Thompson Benefit Association, Brattleboro, was a hospital service and a surgical insurance plan; they published a number of, two or three reports, over those years that we had received.

Q.—And is that what you enclosed when you stated, "The enclosed outline of those plans" was going forward?

A.—Yes, that was a kind of synopsis of the plans and reports which we prepared to make the information more readily available to the inquiring person.

Q.—And you added, "There are several other plans of a similar type, but as a general rule they do not provide the complete services claimed nor are they solely supported by dues collected from the members."

"A number of independent services have agreed that medical services cost an average of not less than \$100 per family, or \$25 per person. It is inconceivable that any insurance or prepayment plan can provide the same services for lower average charges. Either the services are not as complete or the quality of the services is impaired. Frequently the members who ask for services are given the complete run of the mill which always entails special charges for special services. It is also not uncommon to find that dues and special charges are insufficient to support the plan and that the deficits are made up from profits derived from extra activities, such as soda fountain, magazines, or direct sales.

"Income from non-members is also an important financial item. "This information is given which you request and is confidential. Opinion is given merely as a business courtesy. No responsibility is to attach to the American Medical Association or its officers personally for the information we have given."

Were those comments based upon service reports you had, and which were read and studied by you?

A.—Yes, they were an analytical study of those plans.

Q.—Are those comments, whether critical or otherwise, based upon what those studies show?

A.—They were based upon studies of these plans.

Q.—And do you think that while you were there that you studied plans for the distribution of medical care which would run up into the thousands?

A.—Yes, that is certainly true.

TESTIMONY OF HATTIE A. NIEHOFF
DIRECT EXAMINATION

By Mr. Kelleher:

Hattie A. Niehoff said she had been employed by the American Medical Association about a month less than twenty-seven years and, in response to the question as to her position during the last ten years, stated that she was secretary to Dr. Olin West.

Miss Niehoff then described the filing system and identified exhibits as follows:

Letter 6/22/37 Hendricks to West
Letter 6/28/37 West to Herbst
Letter 6/25/37 West to Herbst
Letter 10/7/37 Conklin to Fishbein
Letter 10/19/37 West to Conklin
Letter 10/14/37 West to Conklin
Letter 10/9/37 Conklin to West
Letter 10/29/37 West to Tibbals
Letter 11/6/37 West to Tibbals
Telegram 11/4/37 West to Hooe
Telegram 11/5/37 Hooe to West
G. H. A. Conference 11/6/37
Letter 11/9/37 West to Hooe
Letter 11/9/37 West to Wall
Letter 11/16/37 West to Wise
Letter 2/24/38 West to Talley
Telegram 4/21/38 West to Talley
Letter 5/5/38 West to Coole
Letter 5/5/38 West to Follansbee
Letter 9/21/38 West to Erskine
Letter 10/8/38 West to Erskine
Letter 10/12/38 West to Hammerly
Pages 295, 296, 297 of minutes of Judicial Council
Pages 17, 18 of minutes of Judicial Council
Pages 156, 157 of minutes of Judicial Council
Minutes Judicial Council 11/12/37
Letter 1/31/35 West to McLean
Letter 2/6/36—West to Freiberg
Letter 3/18/36 West to Freiberg

Q.—I also show you Exhibit 145 for identification and ask you to identify that as the opinion of the Judicial Council of the American Medical Association in the case—of appeal to the Judicial Council in the case of Dr. A. L. Curtin et al.

A.—It so appears to be.

Q.—Does this Government Exhibit 145 bear the signatures of members of the Judicial Council at that time?

A.—My memory isn't quite so good so far back, but Dr. O'Shea, Dr. Donaldson, Dr. Cumniffe and Dr. Follansbee are yet members of the Judicial Council.

Mr. Kelleher:—I offer in evidence Government Exhibit 144 and Government Exhibit 145.

THE COURT:—This is the original finding, is it?

Mr. Kelleher:—She so identified it as the opinion of the Judicial Council.

THE COURT:—Any objections?

Mr. Leahy:—Yes, your Honor. Objections to both of these. One goes back to 1932, Oct. 19, 1932. It purports on the subject to be a decision by the Judicial Council, but there is nothing in the decision purporting to set forth the facts or to acquaint anybody with the basis of the decision. It is back in 1932, and I think the evidence already is in the case that the change in the policy of the A. M. A. was made in 1934, so that this decision if it were admissible under any ground would have been one rendered under entirely different conditions.

THE COURT:—Well, I will have to study it.

Mr. Leahy:—This is a mere decision of the Judicial Council. The members of the Judicial Council are not named here in any way. They all have their signatures here.

THE COURT:—They signed it?

Mr. Leahy:—They signed it. They are not indicted.

THE COURT:—It all relates to the same matter, doesn't it?

Mr. Kelleher:—Yes, your Honor, it does.

THE COURT:—I imagine if one is overruled, the other is, so I will confine it.

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Mr. Richardson:—May we approach the bench?

THE COURT:—Yes.

(Counsel for both sides approached the bench and conferred with the Court.)

TESTIMONY OF LILLIAN LEACH

Mr. Kelleher:—Do I understand, Mr. Leahy, that the authenticity of Government Exhibits 147, 149, 150 and 151 for identification is conceded?

Mr. Leahy:—Yes, your Honor, we make no objection to the form of proof on that ground.

Mr. Kelleher:—I offer in evidence Government's Exhibits 147, 149, 150 and 151; and at the same time I offer in evidence Government's Exhibit 148, which purports to be a letter from Dr. Follansbee to Dr. Olin West dated April 27, 1938.

THE COURT:—I understood Dr. Follansbee to be an officer of the American Medical Association.

Mr. Kelleher:—Yes, he is chairman of the Judicial Council.

THE COURT:—Now, 151. Who is Dr. Anderson?

Mr. Kelleher:—Dr. Anderson; he is assistant to Dr. Holman Taylor, who was the secretary of the Texas State Medical Society.

THE COURT:—What about 151, Mr. Leahy?

Mr. Leahy:—That is objected to, if your Honor please, because it is—

THE COURT:—I will take it up later. Now, 150.

Mr. Leahy:—That is objected to, if your Honor please.

THE COURT:—I don't think that you will even have to give your name.

TESTIMONY OF IDA LEACH CASCIO

DIRECT EXAMINATION

Ida Leach Cascio said she has been employed by the American Medical Association a little over fifteen years in Dr. West's office as a stenographer.

Mr. Kelleher offered eleven exhibits for identification.

TESTIMONY OF A. M. SIMONS

DIRECT EXAMINATION

A. M. Simons said he has been working in the Bureau of Medical Economics, American Medical Association, under Dr. Leland since May 1932.

He was asked to verify eight exhibits produced by the American Medical Association in response to a subpoena in this case.

CROSS EXAMINATION

By Mr. Leahy:

Q.—What were your duties in Dr. Leland's department, please?

A.—Largely research work, but a certain amount of correspondence besides.

Q.—What is the character of the research work you would do?

A.—Making studies, for instance, beginning with compensation; then with other various problems in medical economics; factual studies.

Q.—Did those studies take your attention all over the United States? I mean in the subject matter of your studies, did you include the entire United States?

A.—Yes.

Q.—How many other workers were there in the bureau while you were there?

A.—When I came, I think there were only three.

Q.—And now?

A.—This recent preparedness work has brought in ten or fifteen.

Q.—Isn't it a fact that your bureau had collected a vast amount of data with reference to all matters concerning medical economics?

A.—Yes.

Q.—And are those preserved in the bureau for the information of anybody who asks for that information?

A.—Yes.

Q.—Does that include the general public as well as the members of the profession?

A.—Yes.

Q.—How many inquiries would come in in the course of a year, to your bureau?

A.—Well, I would say three or four a day, that I handled.

RE-DIRECT EXAMINATION

By Mr. Lewin:

Q.—You said that you discussed these reports after you made them? With whom did you do that?

A.—Dr. Leland.

Q.—And as regards the correspondence which you just looked at, and which has been offered in evidence while you have been on the stand, will you tell us whether, when you made any expressions of opinion in those letters, you were expressing the policy of the A. M. A., as you understood it?

A.—Yes.

RE-CROSS EXAMINATION

By Mr. Leahy:

Q.—Did you have any authority to make any policies yourself?

A.—I was told no one had authority to make policies except the House of Delegates.

Q.—Isn't it a fact that so many letters came over the desks of the Medical Economics Bureau of the American Medical Association that it would be impossible for Dr. Leland to review every reply or even read every letter of inquiry?

A.—Certainly.

Mr. Lewin:—And for that reason when you expressed opinions in those letters you made them conform with what you believed to be the policies of the A. M. A., from your discussions with Dr. Leland?

The Witness:—And from my reading of the proceedings of the House of Delegates.

TESTIMONY OF BESS T. MC DONALD

Bess McDonald said she had been employed by the American Medical Association for sixteen years as secretary to the director of the Bureau of Legal Medicine and Legislation. She identified exhibits 177 through 192.

TESTIMONY OF ALICE MILLER

DIRECT EXAMINATION

Mrs. Alice Miller, a stenographer, said she had worked for the Bureau of Legal Medicine and Legislation of the American Medical Association about eleven years; in 1937 under the direction of the defendant, William C. Woodward. She identified exhibits 193-197.

TESTIMONY OF DOROTHY CRIDLAND

DIRECT EXAMINATION

Dorothy Cridland was employed by the American Medical Association from the spring of 1931 until October 1937 in the office of William C. Woodward. She identified exhibits 198 to 203.

TESTIMONY OF WINNIFRED WELTON

Winifred Welton was stenographer for Dr. William C. Woodward. She identified exhibit 204.

TESTIMONY OF KATHRYN HARTENBURG FORD

Kathryn Hartenburg Ford said she was a stenographer for the Council on Medical Education and Hospitals, working for Dr. William D. Cutter. She identified exhibits 205-208.

TESTIMONY OF ALYCE BUCKLEY TURBUSH

Alyce Buckley Turbush said she was a stenographer in the Council on Medical Education and Hospitals. She also took dictation in 1938 from Dr. F. H. Arestad a hospital inspector. She identified exhibits 209-214.

TESTIMONY OF MARGARET WILSON

Margaret Wilson is employed with the American Medical Association as a stenographer. She identified exhibits 215-217. She also took dictation from Dr. C. M. Peterson a hospital inspector in the Council on Medical Education and Hospitals.

TESTIMONY OF MILDRED HANSON CARGILL

Mildred Hanson Cargill was a stenographer at the American Medical Association for the Council on Medical Education and Hospitals. She took dictation from Drs. William D. Cutter and C. M. Peterson. She identified exhibits marked 218 through 234.

TESTIMONY OF DOROTHY ERNSTING

Dorothy Ernsting was employed by the American Medical Association, as stenographer and typist for the Council on Medical Education and Hospitals. She identified exhibits 235 to 246.

TESTIMONY OF MARY A. MC GOVERN

Mary A. McGovern was stenographer to the Council on Medical Education and Hospitals. She identified exhibits 247-255.

TESTIMONY OF CAROLINE CHRISTOPHER

Miss Caroline Christopher was a stenographer in the employ of the American Medical Association Council on Medical Education and Hospitals. She took dictation from Dr. Peterson. She identified exhibit 256.

TESTIMONY OF DOROTHY PECHMAN TURNER

Dorothy Pechman Turner was employed with the American Medical Association from 1934 through 1939 as secretary to Dr. Leland in the Bureau of Medical Economics.

Q. Who is A. J. Cramp?

A. Dr. Cramp was formerly Director of the Bureau of Investigation.

The witness identified exhibits 259-280.

TESTIMONY OF CATHERINE E. JOHNSON

Mrs. Catherine E. Johnson was a stenographer in the Bureau of Medical Economics. She identified exhibits 257 and 258.

TESTIMONY OF ZITA WIST

Zita Wist testified that she was Dr. Fishbein's secretary in 1937. She identified exhibits 281, 282 and 283.

TESTIMONY OF RHEA H. SMITH

Rhea H. Smith is secretary to Dr. Fishbein. She identified exhibits 284-290 and 297 A.

RE-DIRECT EXAMINATION

Mr. Lewin:

Q. When Dr. Fishbein would send a communication to Dr. West or Dr. Woodward, or others of his associates in the American Medical Association for reply, was it his practice to indicate what the nature of the reply should be?

A. Well, I don't think so; he would probably give a suggestion; and sometimes he didn't.

Q. Sometimes he did and sometimes he didn't?

A. That is right.

RE-CROSS EXAMINATION

Mr. Leahy:

Q. What was Dr. Fishbein's business at the time you worked for him?

A. Editor of THE JOURNAL.

Q. He was editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION?

A. Yes.

Q. Did you know Dr. Leland?

A. Yes.

Q. Did you know Dr. Cutter?

A. Yes.

Q. Each one of those men headed distinct and separate departments, did they not?

A. Yes.

Q. And was it not the practice of Dr. Fishbein, where any communication was addressed or directed to him, where it should have been referred to some one else, that he refer it by an inter-office communication?

A. Well, sometimes it would be handled this way: The letter would be acknowledged and the original letter plus the copy of the reply would be sent to whoever handled that particular work. No memorandum would accompany that; he would simply write the name of Dr. West or Dr. Leland or Dr. Woodward on it, and it would go over with the copy of the reply which we had sent to the person making the inquiry or who had written the letter.

Q. You don't mean to indicate that Dr. Fishbein would tell Dr. West, Dr. Cutter or Dr. Leland how they should dispose of the matter, do you?

A. No. I would write the letter of reply, and the carbon copy which we would forward to whomever it was sent to by interoffice communication would be accompanied by the original letter. No memorandum would accompany the letter and reply.

Q. How many secretaries worked there for Dr. Fishbein to keep up with the mail?

A. Three.

FEBRUARY 14, AFTERNOON

Following recess, the court assembled with the attorneys for the government and for the defendants to consider the admissibility into the evidence of some of the exhibits which had been submitted during the morning session and previously. Inasmuch as this material was presented in the absence of the jury, it cannot be published until the completion of the trial. Those documents which were admitted will be read to the jury and will be published as part of the proceedings.

FEBRUARY 17—MORNING

The Court resumed session and spent the entire day in discussing the admissibility of some of the letters involved in the case, and of the minutes of the District of Columbia Medical Society. As the arguments between the attorneys on these points were held in the absence of the jury, this material is not available for publication in THE JOURNAL. Such material as was admitted by the Court will, of course, be presented by the attorneys in the course of the presentation of the case.

FEBRUARY 18—MORNING

When Court resumed, the jury was again dismissed and attorneys argued before the Court over the admission of the minutes of the Board of Trustees of the American Medical Association and of the minutes of the Judicial Council of the American Medical Association.

FEBRUARY 18—AFTERNOON

The court ruled that minutes could be introduced in evidence and it was for the jury to say after argument pro and con whether they would prove what is alleged or whether they do not.

TESTIMONY OF COL. GLEN I. JONES
DIRECT EXAMINATION

By Mr. Lewin:

Glen I. Jones stated he is a surgeon employed by the Southern Railway, on a salary. Before that he was in the Medical Service of the United States Army. He entered the service in 1909 with rank of first lieutenant and retired from the service in July 1936 with the rank of Colonel. In the Army he was compensated by rates of pay prescribed by law, on a salary basis. The Medical Service of the United States Army has a special attitude toward preventive medicine which includes the control of sanitary and other conditions which would preclude the occurrence of epidemics of diseases, principally; study of its personnel so as to discover any evidence, any symptoms or manifestations which might suggest the presence of disease among its personnel. It includes periodical physical examinations and checkups.

Q.—In the spring of 1937, were you offered the post of medical director of Group Health, Inc.?

A.—I was.

Q.—Who first suggested the employment?

A.—I had been suggested to officials in the Home Owners Loan Corporation with respect to my being a candidate for that position.

Q.—Do you know who made that suggestion?

A.—I think the Surgeon General of the Army, General Reynolds, although he might have had associated with him other officers or officials.

Q.—And to whom was the suggestion made? Can you tell us the names of the individual or individuals in the Home Owners Loan Corporation?

A.—To Mr. Zimmerman, I believe.

Q.—Did you signify to either of these gentlemen that you might be interested in the job?

A.—Well, at first I don't think that entered into it. The proposition was put to me; I was asked by Mr. Zimmerman and Mr. Penniman to make a study of it and report to them, tell them how it might be done.

Q.—And when was your first interview with them?

A.—In the month of March; the precise date I don't recall.

Q.—And where did this interview first take place?

A.—In Mr. Zimmerman's office in the Home Owners Loan Corporation.

Q.—What did Mr. Zimmerman tell you of the proposition?

Mr. Leahy:—I object; hearsay.

THE COURT:—Sustained.

By Mr. Lewin:

Q.—What was the proposition you were asked to take?

A.—The first proposition that was put up to me was how physicians might be organized to give medical attention to subscribers in an organization in the H. O. L. C., on the basis of insurance or prepayment for medical attention.

Q.—And who put that proposition up to you?

A.—Mr. Zimmerman and Mr. Penniman jointly.

Q.—Did the proposition include the establishment of a centrally located clinic?

Mr. Leahy:—I object to it; it is leading and, secondly, violation of the hearsay rule.

THE COURT:—I think that is a good objection.

By Mr. Lewin:

Q.—Was anything said to you about the establishment of a clinic in connection with the establishment of this plan?

Mr. Leahy:—The same objection, hearsay.

THE COURT:—Yes.

By Mr. Lewin:

Q.—What other features of the plan were present as first explained to you?

Mr. Leahy:—The same objection. Hearsay.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—How long a period of time did you negotiate with these gentlemen?

A.—About two or three months.

Q.—And when the proposition was made to you, what post was offered to you?

A.—To organize and direct the operations of the medical unit which might be organized.

Q.—What salary was discussed for you?

A.—They spoke of \$10,000 a year; I don't know whether that was a direct offer, because the development did not materialize.

Q.—And was any statement made to you as to the duties you were expected to perform?

Mr. Leahy:—I object to that as hearsay.

THE COURT:—Sustained.

By Mr. Lewin:

Q.—What duties were you expected to perform in connection with this offer?

A.—To organize the unit and operate it.

Q.—Were you to be the only doctor, or were other doctors to be assistants to you?

A.—I was to organize the unit of physicians.

Q.—And how were those physicians to be compensated?

A.—On a salary basis; as far as we went.

Q.—What was your inclination toward that offer?

Mr. Leahy:—Objected to.

THE COURT:—Sustained.

By Mr. Lewin:

A.—This offer of the directorship was not made to me until I had drawn up some plans at the request of Mr. Zimmerman and Mr. Penniman how such a prepayment plan might be operated.

Q.—Will you describe the plans that you drew up?

A.—I studied and submitted to them three plans.

Q.—What were they?

A.—The first plan was the organization.

Mr. Leahy:—Is this all material and relevant, these plans that he studied?

THE COURT:—I don't know.

Mr. Lewin:—Certainly it is.

Mr. Kelleher:—It will appear in just a few minutes; its relevancy and materiality will appear in a few more questions.

Mr. Leahy:—Were they in writing? If so, let us have them. It would be the best evidence.

Mr. Lewin:—He knows the fact. What could possibly be better than his knowledge? What objection is there to having the jury hear it from him?

Mr. Leahy:—That is not the question. There is a right way and a wrong way.

Mr. Lewin:—And we do not propose to learn the right way in a school conducted here by defense counsel.

Mr. Leahy:—I can't see how the plans studied and submitted by the colonel are material.

THE COURT:—The question as to what was adopted; only that plan is relevant.

Mr. Lewin:—We are going to prove that this witness never accepted the job, and give the reasons why he did not. It is charged in the indictment.

THE COURT:—Well, go to it, but let us get to that point.

By Mr. Lewin:

Q.—Will you describe the plans which you suggested?

Mr. Leahy:—I still object. I think it is entirely incompetent, irrelevant, and immaterial.

Mr. Lewin:—I am entitled to show the scope of these plans. If you will wait until this witness testifies, you will see the materiality. You are a wonderful witness yourself but I would rather have him testify at this time.

Mr. Leahy:—The objection is to the point that this witness says he studied and submitted three plans. What have we to do with that?

THE COURT:—I will rule that the plans submitted are not relevant. Perhaps it may be relevant to show that the plan adopted is relevant. If your purpose is to prove he had this offer and was restrained from accepting it, for one reason or another, go ahead and prove it. Let's proceed the way I have suggested.

By Mr. Lewin:

Q.—Describe the plan that you were to be medical director of in these discussions.

A.—There was no plan adopted.

Q.—What was the plan that was considered?

Mr. Leahy:—Objected to as immaterial; it was not adopted.

THE COURT:—I don't think you understand me. Will you step up here.

(Counsel for both sides approached the bench and conferred with the Court).

By Mr. Lewin:

Q.—Did you have occasion to consult anybody else about these plans except the members of the H. O. L. C.?

A.—Not specifically about the plans, but in general, about the project, I did.

Q.—Whom did you consult?

A.—The organization of this unit I felt to be successful, that is, to give the proper service to the people who might subscribe,

must be the best that we could procure, among the profession in the District of Columbia. I therefore felt that I should canvass representative men of the Medical Society of the District of Columbia and determine whether I would get their support.

Q.—Whom did you see?

A.—I saw several members of the District Medical Society whose judgment I respected.

Q.—Did you see any of the defendants in this case?

A.—I don't know who the defendants are.

(The witness testified he saw Dr. Arthur C. Christie, Dr. Thomas A. Groover, Dr. Charles Stanley White.)

A.—Individually I do not recall any others. I saw others collectively by invitation later.

Q.—What did Dr. Christie say to you?

A.—He indicated his disapproval of the project.

Q.—What did he say? Do you remember?

A.—Oh, not specifically; no. In general he said that they were opposed to it—the District Medical Society was opposed to it, and we could not expect their support; that members of the medical profession of the District of Columbia who might be invited to join such a unit and did join it, could not expect to continue with the District Medical Society nor could we expect the members of the medical profession in the District would consult with members of such a group.

Q.—Did these other doctors whom you talked to take a similar position?

A.—They did.

Q.—What effect did their observations have upon you?

Mr. Leahy:—I object as immaterial.

THE COURT:—Colonel, were you a member of the Medical Society?

The Witness:—Not of the District Medical Society; no, sir.

THE COURT:—I think you may answer the question.

The Witness:—Will you state it again?

(The pending question was read by the reporter as recorded.)

A.—It made me skeptical about the success of the prepayment plan, with that unit.

By Mr. Lewin:

Q.—Did you report back to Mr. Zimmerman and Mr. Penniman?

A.—I did.

Q.—Why were you skeptical of the success of the plan then?

A.—Because I felt that such a unit should be composed of the very best that could be procured from among the medical profession of the District of Columbia, in honesty to the subscribers.

Q.—Did you have any opinion about the success of the enterprise if the District of Columbia Medical Society withheld its cooperation?

A.—Not immediately. I felt that there was a breach there that probably might be closed by communications between the H. O. L. C. representatives and the District Medical Society.

By Mr. Lewin:

Q.—What effect did it have upon the continuation of the idea?

Mr. Leahy:—I object to that. It would be necessarily a conclusion.

THE COURT:—Yes. I think you might ask him what, if any, effect it had upon his further connection with the matter.

By Mr. Lewin:

Q.—I will adopt his Honor's question. What effect, if any, did it have upon your further connection with the matter?

A.—At that time, none. It prompted Mr. Zimmerman and Mr. Penniman to call a meeting of the Surgeon Generals of the several services who they, Zimmerman and Penniman, had reported as giving a green light on this project. When I say a "green light" I mean in a general way.

Q.—Who were those Surgeon Generals?

A.—General Rossiter of the Navy, General Cummings of the Public Health Service, General Reynolds of the Army, and the Commissioner of Health of the District of Columbia, Dr. Ruhland.

Q.—Was this meeting held?

A.—It was.

Q.—Where was it held?

A.—In the apartment of Mr. Zimmerman.

Q.—Who else attended except the three Surgeon Generals and the Health Officer?

A.—Mr. Zimmerman and Mr. Penniman.

Q.—And yourself?

A.—And a representative of the Twentieth Century Foundation.

Q.—Do you remember his name?

A.—I do not.

Q.—What transpired at this meeting?

Mr. Leahy:—I object as immaterial.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—Were any decisions arrived at at the meeting?

Mr. Leahy:—I object as immaterial.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—Did you make any suggestions as to what to do next?

Mr. Leahy:—I object as immaterial.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—What did you do as the result of the discussions at the meeting?

A.—That was the beginning of my withdrawal from participation in the project. However, I was invited to attend a meeting of the District of Columbia Medical Society shortly after that.

Q.—Was that meeting held in a doctor's office?

A.—No; in the building of the District of Columbia Medical Society.

Q.—Did you before that time attend a meeting in Dr. William Gerry Morgan's office?

A.—I did.

Q.—Who was present?

A.—I can tell you in part; probably not as to all of them. Dr. Gerry Morgan, Dr. Macatee—

Q.—Dr. Henry Macatee?

A.—Yes; Dr. Prentiss Willson—

Q.—That is, the defendant Prentiss Willson in this case?

A.—I don't know the defendants in this case, sir. Dr. Verbyck; probably one or two others that I do not recall.

Q.—What transpired at that meeting?

A.—I was interrogated about the proposed medical project in the H. O. L. C., and it was discussed.

Q.—What opinions did you express?

A.—I think I expressed the opinion that the medical profession should take hold of a project somewhat like this and organize it and lead it.

Q.—What decision, if any, was arrived at?

A.—There was not any reached, so far as I know.

Q.—You say after that you attended a meeting of the Executive Committee of the District Medical Society?

A.—I did; yes.

Q.—Did you speak at that meeting?

A.—I did; yes. I did not give an oration. I made some comments and answered some questions.

Q.—I show you an excerpt from the minutes of the meeting of the Executive Committee of the Medical Society of the District of Columbia held on Tuesday evening, June 1st, 1937, which shows that you were present by invitation, and I will ask you to read that excerpt, if you will.

Mr. Leahy:—I think if he has a recollection of the meeting he can give it.

Mr. Lewin:—I would like to know whether these minutes are substantially accurate or not.

Mr. Leahy:—You cannot prove that by his reading them.

A.—(After examining document referred to) Why, in substance, yes. There is one part there that I don't understand at all.

By Mr. Lewin:

Q.—Will you point that out?

A.—Yes. This part (indicating), "he told them"—"frankly that if the Medical Society of the District of Columbia disapproved their efforts that there would not be any available medical assistance that could be depended upon." I don't know what that means at all.

By Mr. Lewin:

Q.—Did you decline the medical directorship as a result of this conference?

A.—I did.

Q.—Did you state your reasons for doing so?

A.—Yes.

Q.—What were those reasons?

Mr. Leahy:—To whom were they stated?

Mr. Lewin:—I want to know what the reasons were.

Mr. Leahy:—Ask him that.

Mr. Lewin:—I have asked him that.

Mr. Leahy:—I object as immaterial.

THE COURT:—Objection overruled.

A.—I gave as my reasons that—first of all, I indicated that I held the opinion individually that there was a wage group who could be better cared for if a better arrangement were made for medical attention to that group.

By Mr. Lewin:

Q.—What was the better arrangement?

A.—There are a number of them.

Q.—Which was the one that you preferred and recommended?

A.—I don't know that I had any choice of the three. I made a recommendation to them for theirs, but for a general organization to affect all people who might need medical attention I had another view.

Q.—I did not ask you about that. I asked you what the plan was that you said you preferred, that you thought would help these people with a certain income. What was it?

A.—I had no plan, myself. I say I had an opinion.

Q.—Let us have that opinion. What was your opinion as to a plan that would help that group?

A.—I had no specific plan. It was any one of three or four that I can state to you.

(The witness was again asked why he refused the directorship. Defense counsel objected to the nature of the question.)

THE COURT:—Objection sustained. Go back to that same question. You got off of that. The question was, what reasons did he have for declining the directorship?

The Witness:—My reasons for declining the directorship were that I felt that such a project, if engaged in, should be composed of the best that could be produced in the medical profession and be guided by the people who represented the best interests in the medical profession.

By Mr. Lewin:

Q.—Why did you decline? Did you find that that could not be done?

A.—I felt so.

Q.—Why did you feel so?

A.—For obvious reasons.

Q.—What were those obvious reasons?

A.—That the District Medical Society or individuals in the District Medical Society had indicated their unwillingness to proceed and had indicated that they would not consult with the group, which automatically denied to the unit the best that the medical profession had to offer in the city of Washington.

Q.—I show you what purports to be a letter from M. W. Ireland to Dr. William D. Cutter, dated March 27, 1937. I ask you to look at that letter, if you will. Who was General Ireland?

A.—He was an ex-Surgeon General of the Army.

Q.—Do you know whether or not General Ireland had held any position with the American Medical Association?

A.—I think he was a member of the Council on Medical Education.

Mr. Lewin:—I ask that this be marked as an exhibit (handing a paper to the reporter).

(Letter dated March 27, 1937, from Ireland to Cutter, was marked U. S. Exhibit No. 295 for identification.)

By Mr. Lewin:

Q.—I would like you to read that letter over to yourself. I want to ask you a question or two about it.

Did you ever state to the Surgeon General or to General Ireland the things which are attributed to you there?

Mr. Leahy:—We object. I do not know what he is trying to do—impeach the letter or impeach his own witness.

Mr. Lewin:—I am trying to get at the fact.

THE COURT:—The letter is in without objection. Under those circumstances, if Colonel Jones is familiar with it I see no objection to his being asked about any incident that relates to him or any statement which relates to him.

By Mr. Lewin:

Q.—Let me read you this. It says:

"After this visit—

Speaking of your visit—

"with the men from the Home Owners Loan Corporation, which lasted for a period of two or three hours, Jones telephoned to the Surgeon General to the effect that this was nothing but an entering wedge to the establishment of state medicine." Did you state that to the Surgeon General?

A.—I made some observations which were not as positive or direct as stated by General Ireland in connection with that, in that particular, both to General Ireland, General Reynolds and all of the members of the group, all of the generals who met with the District Medical Society collectively and individually.

Q.—Did you state that in your opinion what you were asked to head was nothing but an entering wedge to the establishment of state medicine?

A.—Not in those terms.

Q.—Did you say that in substance?

A.—I made this observation substantially as follows, that I felt the medical profession had a job to do in providing some way to take care of a prepayment plan—

Mr. Leahy:—Pardon me, Colonel. I do not like to interrupt you, but I submit that that is not proper, if your Honor please.

THE COURT:—Are you objecting to it?

Mr. Leahy:—Yes, sir.

THE COURT:—Objection sustained.

By Mr. Lewin:

Q.—Did you say this? Did you say to anybody that you were dropping this plan like a hot cake, as early as March 27, 1937?

A.—No.

CROSS EXAMINATION

By Mr. Leahy:

(Colonel Jones recapitulated the record of his career.)

Q.—Did you do any private practice of medicine after you retired?

A.—Yes, I did, for three or four months, in an institution.

Q.—What institution was that?

A.—The North Shore Health Resort.

Q.—You were asked a question whether or not you were interested in preventive medicine. Do you recall that question?

A.—I do.

Q.—Could you tell the jury in general what the phrase "preventive medicine" means?

A.—Yes. Preventive medicine means proper care as to ventilation, disposal of waste, the care of streets and grounds, the early recognition of individual cases of infectious diseases, the inspection and preservation and proper care of food, the testing and care of water supplies and similar things.

Q.—Doctor, is it not a fact, from your experience, that all reputable doctors are interested in preventive medicine?

A.—Without question.

Q.—You are a member of the A. M. A., are you not?

A.—I am.

Q.—And is it not a fact that over a period of years, so far as you have been a member, and longer, the members of the American Medical profession have been very generally interested in preventive medicine?

A.—Actively.

Q.—How many years have you been a member of the A. M. A.?

A.—I think, all my service, ever since I became a doctor.

(The witness stated he had known Drs. Christie, Groover, Macatee and Verbrycke for twenty-five to thirty years.)

(He had known Dr. Morgan and he had known Dr. C. S. White for thirty-seven years.)

Q.—And you had confidence in the judgment of those men, did you?

A.—I did.

Q.—And that is why you went to chat with them?

A.—I did—that is the reason.

Q.—Did you consider that those men whom you met were the outstanding or some of the outstanding physicians of the District of Columbia?

A.—I would identify them as such; yes.

Q.—Did you explain to them or talk to them with reference to your own plan?

A.—I don't think I talked about any plan that I had to anybody except Mr. Zimmerman and Mr. Penniman. It was prepared for them as ways in which the project they had in mind might be accomplished. I put it in their hands, and so far as any specific plan that I had, I think I kept that with myself after I communicated it to them. That was the job they gave me to do and I did it, and I did not discuss it.

Q.—You did not discuss that plan with any of the doctors whose names we have mentioned?

A.—No; I did not.

Q.—Did you discuss the matter with General Ireland?

A.—My plan? No; I did not.

Q.—Did you discuss the fact that you had chatted with any one from the H. O. L. C., with General Ireland?

A.—I did, and with all of the other doctors.

Q.—Do you recall about when it was you chatted with General Ireland about that?

A.—Any number of times during the period that the thing was under consideration.

Q.—Do you think you talked with General Ireland at or about the time the General wrote this letter?

A.—I may have. If General Ireland says I did, I did.

Q.—The General says:

"At the early part of the week a couple of men from the Home Owners Loan Corporation visited the Surgeon General of the Army to say that they wanted to obtain the services of a doctor to look out for the health of their personnel, which

incidentally is quite large. After the consultation the Surgeon General asked Colonel Glen Jones, a retired medical officer, to visit these people."

Did General Ireland request you to visit them?

A.—No.

Mr. Lewin:—It does not say he did. It says the Surgeon General did.

By Mr. Leahy:

Q.—Who was the Surgeon General?

A.—General Reynolds.

Q. (Reading):—"After this visit, which lasted for a period of two or three hours"—Do you think the visit lasted that long?

A.—I think so; yes.

Q. (Continuing reading):—"Jones telephoned to the Surgeon General to the effect that this was nothing but an entering wedge to the establishment of state medicine, and so far as he could make out, the Twentieth Century Foundation Corporation of New York City was going to pay the expenses of this so-called medical care for the personnel of H. O. L. C." Do you recall telling the Surgeon General that?

Mr. Lewin:—That is a double-barreled question. There are two things there that he said he told them.

Mr. Leahy:—Very well. We will pick them apart.

By Mr. Leahy:

Q. (Reading):—"After this visit, which lasted for a period of two or three hours, Jones telephoned to the Surgeon General to the effect that this was nothing but an entering wedge to the establishment of state medicine." In substance did you tell the Surgeon General that?

A.—No. I made a report to the Surgeon General, since he had sent me to the H. O. L. C., on my observations and my opinion, but it was not like it is stated in that letter.

Q.—Was it words in substance, or was the thought in substance that you expressed to the Surgeon General, that it was an entering wedge to the establishment of state medicine?

A.—Not that way; no.

Q.—Whether in those words or not, was that the thought which you expressed to the Surgeon General?

A.—No.

Q.—There was no thought about state medicine concerned in it?

A.—There was.

Q. (Reading):—"So far as he could make out, the Twentieth Century Foundation Corporation of New York City was going to pay the expenses of this so-called medical care for the personnel of the H. O. L. C." Did you mention that to the Surgeon General?

A.—Not in those terms. I mentioned the Twentieth Century Foundation; yes.

Q.—And your information at that time was that the Twentieth Century Foundation was going to pay the expenses of the so-called medical care for the personnel of the H. O. L. C.?

A.—I qualify that—that the Twentieth Century Foundation was interested in supporting it.

Q.—Financially?

A.—Well, I don't know about that. Nothing was ever said to me about financially.

Q.—What did you think they were supporting it with?

Mr. Lewin:—I object to that.

By Mr. Leahy:

Q.—Did you report it to the Surgeon General?

A.—That they were getting financial support?

Q.—Yes.

A.—I told him the Twentieth Century Foundation was interested in putting us off this project. If I may give you in words what I think as to that, the Twentieth Century Foundation is set up to finance such institutions, so the natural inference was that it was financial. But I did not use the word "financial," because I was not interested in the way the unit was promoted in the H. O. L. C. Where it got its finances was not a thing that was submitted to me at all.

Q. (Reading further):—"Needless to say, Jones and the Surgeon General are dropping it like a hot cake." Did you say anything to the Surgeon General at that time about dropping the matter?

A.—No.

Q.—Was anything said by you at the time with reference to dropping it, in substance, such as General Ireland reported?

(Reading):—"Needless to say, Jones and the Surgeon General are dropping it like a hot cake."

A.—I more than likely made an observation to the effect that I did not see how this project could succeed, since it was violently opposed by the members of the District Medical Society.

Q.—Had you found that out on March 27, 1937?
A.—I found it out within three or four days after I had first interviewed Mr. Zimmerman.

Q.—The statement is that it was in the early part of the week, and the letter is dated March 27. Do you think within a week you talked with the Surgeon General and told him that the District Medical Society was opposed to it?

A.—Yes; I did that immediately.

Q.—Was there anything at all that you reported to the Surgeon General which approached the thought that "Jones and the Surgeon General were dropping it like a hot cake"?

A.—No.

Q.—Do you know General Ireland pretty well?

A.—He is my most intimate and respected friend.

Q.—Did you know he had written this letter?

A.—No; I did not.

Q.—Did you know he had written any letter to Dr. Cutter?

A.—No; I did not, until I saw it here.

Q.—Did you ever discuss the matter with your trusted friend?

A.—The matter of this letter?

Q.—Yes.

A.—No.

Q.—You never discussed with General Ireland anything at all about your visit to H. O. L. C.?

A.—Oh, yes; many times.

Q.—And you discussed it with him prior to the date of this letter, March 27, did you not?

A.—Yes, sir; I did.

Q.—But these facts, which General Ireland wrote on March 27, 1937, were not statements which came from you at all?

A.—Not as stated; no. I made observations to General Ireland on state medicine, which I can tell you if you care to hear them.

Q.—Did you make the observation that this was an entering wedge to state medicine?

A.—Not in those words; no.

Q.—In substance?

A.—It depends on what you mean by "in substance."

Mr. Lewin:—Why don't you let him state what he said?

Mr. Leahy:—If he doesn't understand that, I'm satisfied.

The Witness:—I understand it perfectly, if you will let me answer it the way I stated it.

By Mr. Leahy:

Q.—Did you in substance tell General Ireland as it is stated there?

Mr. Lewin:—I object to that, if your Honor please. Counsel ought to be required to ask the witness what he said.

The Court:—He has answered that. Objection sustained.

By Mr. Leahy:

Q.—I will ask you what you did tell General Ireland about state medicine in connection with this project?

A.—I told General Ireland, along with the other members of the medical profession with whom I conferred, voluntarily and by invitation, that I felt the medical profession had a job to do in providing some way to take care of the low-wage group, and that I felt to let it get out of the hands of the medical profession and into the hands of laymen who knew little about the medical side, would finally resolve itself into probably—not entirely, but we would have state medicine or socialized medicine. That was my opinion at the time, and that is the way I expressed it.

Q.—Did you think that a group of laymen organizing a corporation to provide medical care was an entering wedge to state medicine?

A.—Unless it was supported by the medical profession as a whole; yes.

Q.—And unless it was controlled and managed by the medical profession; is that right?

A.—Directly and positively influenced; yes, sir.

Q.—For instance, did you discuss with General Ireland the fact that a group of laymen who would organize such a corporation as that would not be the proper parties to attempt to distribute medical care to the low-income group?

A.—I have no doubt that I did, because I hold that view.

Q.—In other words, your view was that any attempt on the part of laymen to distribute medical care would be what you would call an entering wedge to state medicine?

A.—Yes.

Q.—That is what you felt?

A.—It would incline to it; yes.

Q.—Do you recall what Dr. Christie or Dr. White or Dr. Morgan or Dr. Groover or Dr. Verbrycke felt about the matter at the time, as they expressed themselves to you, Colonel?

A.—Some of them expressed themselves as I have stated in my previous testimony, that they were opposed to it, that they

could not be sympathetic toward the project; that any member of the medical profession in the District of Columbia who joined it would be kicked out of the District Medical Society or lose his membership therein, and any member of the medical society of the District of Columbia who consulted with a member of the group would likewise be put out of the District Medical Society.

Q.—Did they give their reasons why they were not in favor of it?

A.—The thing which you have been very much interested in bringing out, and that is their fear of socialization of medicine, state medicine.

Q.—Colonel, may I ask you this, do you think that state medicine is in the public interest?

A.—No; I do not.

RE-DIRECT EXAMINATION

By Mr. Lewin:

Q.—Did you think that the plan which you were asked to head as medical director was itself an entering wedge for state medicine?

A.—I think I will have to answer that my own way. You keep talking about my plan when no plan was ever adopted.

Q.—Let me ask you this, if you had been able to secure the support of the District Medical Society so you could have gotten consultants from them and could have gotten members of the District Medical Society to serve under you in the Group on a salary, would you have regarded that as an entering wedge for state medicine?

A.—No, I don't think so. I think it would have been a substitute.

Q.—Would you regard it as unethical?

A.—I don't think so.

Q.—Did you think it was necessary that there should be lay enterprise in the handling of medical care?

A.—Well, from my training I wouldn't want a layman around it.

Q.—Who would you leave to make the collection of dues? Would you leave that to the laymen?

A.—A subordinate, yes, I would leave that to a layman, a subordinate.

Q.—You were willing to take the proposition that was offered you by Zimmerman and Penniman and become the Medical Director of this group if you could have gotten some support from the District Medical Society, instead of opposition. Is that right?

A.—I think if you take all of the actions throughout the whole period of time—you are separating things here. Throughout the whole period of time if the District Medical Society had agreed, I would have taken it, yes.

RE-CROSS EXAMINATION

By Mr. Leahy:

Q.—Because, just as you have said, Colonel, the care of the sick should be under the direction and control of the doctors, should it not?

A.—Without any question.

Q.—And there should not be any lay interference coming between the doctor and his patient?

A.—Again without any question.

Q.—And you wouldn't have been connected with a plan which permitted such condition?

A.—No.

Q.—And you wanted the management and control if you were the director in any scheme so that you, as the head of it, would be in full charge of the medical care and control of your patients?

A.—Yes.

FURTHER RE-DIRECT EXAMINATION

By Mr. Lewin:

Q.—Did Zimmerman ever suggest to you that you wouldn't be in full charge if you accepted his offer?

Mr. Leahy:—I object.

Mr. Lewin:—I think I am entitled to this.

Mr. Leahy:—A suggestion by somebody else.

Mr. Lewin:—It is a proposition that was offered.

The Court:—The examination takes such a broad field without objection from either side, it makes most any question that might be asked admissible. One thing goes to another until you get to a point where you have broadened the field of examination so that I cannot very well limit it. Answer the question.

The Witness:—You will have to state it.

(The pending question, as above recorded, was read by the reporter.)

By Mr. Leahy:

Q.—You wouldn't have received such a suggestion, would you?

Mr. Lewin:—I object to that.

THE COURT:—Sustained.

FURTHER RE-CROSS EXAMINATION

By Mr. Leahy:

Q.—Well, Colonel, was there any plan ever adopted?

A.—Not in relation to me specifically, no plan was ever adopted.

Q.—Did you ever see the plan which was finally adopted by H. O. L. C.?

A.—No.

By Mr. Lewin:

FURTHER RE-DIRECT EXAMINATION

Q.—Isn't it true that one other plan which you suggested and which you were willing to undertake involved prepayment on the one hand and group practice on the other, under a medical director, the physicians being compensated by salary, with a centrally located clinic with hospitalization given in the private hospitals and with consultants obtained from the District Medical Society or any other private doctors?

A.—That is correct.

TESTIMONY OF GEORGE GORDON PAYNE

DIRECT EXAMINATION

By Mr. Kelleher:

George Gordon Payne, a court reporter, transcribed a hearing of the executive committee of the District of Columbia Medical Society in 1937.

Q.—How many nights did the hearings cover?

A.—There were four sessions.

The witness identified transcripts of sessions of the executive committee of the District of Columbia Medical Society on Dec. 6, Dec. 10, Dec. 16 and Dec. 20, 1937.

TESTIMONY OF THEODORE WIPRUD

FURTHER DIRECT EXAMINATION

Mr. Wiprud identified minutes of the executive committee of the District Medical Society for June 6, 1938. He also

identified minutes of the District Medical Society for Feb. 3, March 10 and Oct. 20, 1937, Feb. 23, March 23, April 13 and Oct. 12, 1938. He also identified minutes of the executive committee of March 9, April 25, July 1 and Oct. 24, 1938.

FURTHER CROSS EXAMINATION

By Mr. Leahy:

Mr. Leahy:—May they be subject also to our review and looking of them over this evening?

THE COURT:—What?

Mr. Leahy:—The offer that they be received in evidence, may it be reserved until we look over those this evening?

THE COURT:—Oh, I think so, yes.

TESTIMONY OF BETTY LOGSDON

DIRECT EXAMINATION

Mrs. Betty Logsdon, secretary to Dr. J. Ogle Warfield, took dictation from him concerning or relating to correspondence between him and the various hospitals, and between him and the doctors of the hospital committee of the Medical Society of the District of Columbia. She sent a questionnaire to the Emergency, Homeopathic, Providence, Sibley, Garfield, Georgetown, George Washington, Columbia, Childrens and Casualty hospitals on the instruction of Dr. J. Ogle Warfield. These she identified with the answers. She also identified the report of the Hospital Committee dated Dec. 1, 1937, on the letterhead of Dr. J. Ogle Warfield Jr., also the report of the hospital committee submitted to the executive committee of the Medical Society of the District of Columbia on March 28, 1938, which report bears certain handwritten interlineations.

CROSS EXAMINATION

By Mr. Leahy:

This dealt with identification of documents and signatures thereon.

When the witness failed to identify certain signatures Mr. Leahy said: "Might we reserve the objection until the morning on this, if your Honor please?"

THE COURT:—Yes, we will take this up first thing in the morning.

(To be continued)

MEDICAL LEGISLATION

HEARINGS ON PROPOSED HABIT FORMING DRUG REGULATIONS

The Federal Food, Drug and Cosmetic Act, as amended, declares in section 502 (d) that a drug shall be considered misbranded if it contains any quantity of the "narcotic or hypnotic substance alpha-eucaine, barbituric acid, beta-eucaine, bromal, cannabis, carbromal, chloral, coca, cocaine, codeine, heroin, marihuana, morphine, opium, paraldehyde, peyote or sulfonmethane" or any chemical derivative thereof which the Administrator of the Federal Security Agency has found to be and by regulations has designated as habit forming, unless its label bears the name and quantity or proportion of such substance or derivative and in juxtaposition therewith the statement "Warning—May be habit forming." Under the authority thus granted, the Federal Security Administrator has announced¹ proposed regulations designating as habit forming each of the chemical derivatives listed below:

A. Chemical derivatives of barbituric acid—

Barbital	Sandothal	Sigmodal
Phenobarbital	Alurate	Butisol
Amytal	Pernoston	Rutonal
Neonal	Evipal	Eldoral
Ipral	Nostal	Eunarcen
Ortal	Pentothal	Rectidon
Phanodorn	Seconal	Prominal
Pentobarbital	Proponal	Narconumal
Mebaral	Pental	Delvinal
Dial	Cyclopal	

All lithium, sodium, potassium, magnesium, calcium, strontium and ammonium salts of any of the foregoing acids.

B. Chemical derivatives of alpha-eucaine or beta-eucaine—
Any salts of alpha-eucaine or beta-eucaine formed by the combination of any such substance with any acid.

C. Chemical derivatives of bromal—

Bromal hydrate
Brometone
Bromoform

D. Chemical derivatives of cannabis (marihuana)—

Extract of cannabis
Fluidextract of cannabis
Tincture of cannabis

E. Chemical derivatives of carbromal—

Sedormid
Bromural

Neuronal
Acetylcarbromal

F. Chemical derivatives of chloral—

Chloral hydrate
Chlorobutanol
Chloralimide

Chloralformamide
Alpha-chloralose

G. Chemical derivatives of cocaine—

All salts of cocaine formed by the combination of cocaine with any acid.

H. Chemical derivatives of codeine—

Dicodid
Eucodal
Eucodin

Any salt of dicodid, eucodal or codeine formed by the combination of any such substance with any acid.

I. Chemical derivatives of heroin—

All salts of heroin formed by the combination of heroin with any acid.

J. Chemical derivatives of morphine—

Dilaudid
Paramorphan
Ethylmorphine

Any salt of dilaudid, paramorphan, ethylmorphine or morphine formed by the combination of any such substance with any acid.

1. Federal Register 6: 680 (Jan. 30) 1941.

K. Chemical derivatives of opium—

Extract of opium
Fluidextract of opium
Tincture of opium

L. Chemical derivatives of paraldehyde—

Metaldehyde

M. Chemical derivatives of sulfonmethane—

Sulfonethylmethane
Sulfondiethylmethane

MEDICAL BILLS IN CONGRESS

Bills Introduced.—S. 860, introduced by Senator Sheppard, Texas, proposes to provide for the common defense in relation to the sale of alcoholic liquors to the members of the land and naval forces of the United States and to provide for the suppression of vice in the vicinity of military camps and naval establishments. S. 869, introduced by Senator McNary, Oregon, provides for the payment of annuities to persons 21 years of age or over who are citizens of and residents within the United States and who have not more than 20/20 of visual acuity in the better eye with maximum correction or whose field of vision is limited to 20 degrees or less from the fixation point in all quadrants, if the annual income of such persons is less than \$1,200. S. 907, introduced by Senator Walsh, Massachusetts, provides for the continuation in the service of the Army, Navy, Marine Corps and Coast Guard beyond the term of their enlistment those suffering from disease or injury incident to service and not due to misconduct and in need of medical care or hospitalization. H. R. 143, introduced by Representative Welch, California, extends the benefits of hospitalization and the privileges of the soldiers' homes to certain persons who served in a civilian capacity under the jurisdiction of the Quartermaster General during the War with Spain, the Philippine Insurrection or the China Relief Expedition. H. R. 2488, introduced by Representative Bradley, Michigan, proposes a federal appropriation of \$700,000 to construct a veterans' hospital, with a capacity of 150 beds in or near the city of Gladstone, Michigan. H. R. 2504, introduced by Representative Izac, California, proposes to construct a marine hospital in San Diego, Calif. H. R. 2508, introduced by Representative Izac, California, proposes to amend the Social Security Act so as to provide benefits to persons permanently crippled. H. R. 2510, introduced by Representative Izac, California, proposes an appropriation of \$1,000,000 to construct a veterans' hospital, with a capacity of at least two hundred beds, in or near the city of San Diego, Calif. H. R. 3154, introduced by Representative Rolph, California, proposes an appropriation of \$600,000 to construct a one hundred and thirty-four bed patient capacity addition to the existing veterans' hospital at Fort Miley, San Francisco, for the treatment of general medical and surgical disabilities. S. 818, introduced by Senator Barbour for himself and Senator Smathers, both of New Jersey, proposes to amend the act providing for the promotion of vocational rehabilitation of persons disabled in industry or otherwise by defining the term "vocational rehabilitation" to include medical, surgical, corrective and other services and care furnished for the purpose of rendering a person disabled fit to engage in a remunerative occupation. H. R. 3318, introduced by Representative Healey, Massachusetts, proposes to authorize the Administrator of Veterans' Affairs to furnish domiciliary and hospital care and medical treatment to World War veterans of the United States merchant marine. H. R. 3383, introduced by Representative Kefauver, Tennessee, proposes to reduce the tax on nonbeverage ethyl alcohol used exclusively in the manufacture of medicinal preparations, flavoring extracts, flavors and for other nonbeverage purposes. H. R. 3463, introduced by Representative Voorhis, California, proposes to promote the national health and welfare through appropriation for hospitals and for the prevention, education and control of tuberculosis. To provide adequate hospital facilities, the sum of \$25,000,000 would be made available for the fiscal year ending June 30, 1941, the sum of \$50,000,000 for the fiscal year ending June 30, 1942 and thereafter \$100,000,000 for each of the ten succeeding fiscal years. From these appropriations, loans would be made to states, counties, cities and other political

The hearing on these proposed regulations will begin at 11 a. m. on March 3 in rooms A, B and C of the Departmental Auditorium, Constitution Avenue between Twelfth and Fourteenth streets, Washington, D. C. All interested persons are invited by the administrator to attend the hearing and offer evidence relevant and material to the subject matter under consideration.

subdivisions for the construction of hospitals and for their maintenance for a period not over four years. In addition, for the fiscal year ending June 30, 1941, an appropriation of \$3,000,000 would be authorized, for the fiscal year ending June 30, 1942 an appropriation of \$5,000,000, and for each of the ten fiscal years thereafter an appropriation of \$10,000,000 a year for grants in aid in the prevention, education and control of tuberculosis. The bill contemplates that free diagnostic and treatment facilities shall be provided by all health departments or clinics receiving funds under the act (1) for the diagnosis and emergency treatment of any patient referred by a private physician either for continued treatment or for consultative or diagnostic advice and opinion and (2) for any patient unable to afford private medical care. The determination of the ability of patients to pay for medical care, the bill proposes, shall be the responsibility of the director of the health department or clinic in conjunction with a committee from the local medical societies. If and when tuberculosis shall cease to be a national health problem, the bill provides that such physical equipment and facilities as the federal government may have acquired by virtue of the operation of the bill shall thereafter be utilized in the control of cancer or other major health hazards. H. R. 3484, introduced by Representative Byron, Maryland, proposes to provide retirement pay and hospital benefits to certain reserve officers, Army of the United States, disabled while on active duty. H. R. 3492, introduced by Representative Kilday, Texas, proposes to impose additional duties on the United States Public Health Service in connection with the investigation, treatment and control of tuberculosis. This bill proposes for the fiscal year ending June 30, 1941 a federal appropriation not to exceed \$7,750,000, for the fiscal year ending June 30, 1942, \$33,500,000, for the fiscal year ending June 30, 1943, \$37,000,000 and for each fiscal year thereafter such sum as may be necessary, subject to the limitation that subsequent to the fiscal year 1946, the appropriations authorized under the act shall not exceed \$17,500,000. From this federal money, it is proposed, allotments will be made for the purpose of assisting states, counties, cities, health districts and other political subdivisions to establish, extend and improve measures for the prevention, treatment and control of tuberculosis, including the provision of facilities for sanatorium and other care for persons with tuberculosis and for the purpose of making studies, investigations and demonstrations to develop more effective measures of prevention, treatment and control of tuberculosis. State plans must be submitted for approval to the Surgeon General of the Public Health Service. Furthermore, the bill proposes to establish in the Public Health Service a Division of Tuberculosis Control.

STATE MEDICAL LEGISLATION

Arkansas

Bill Introduced.—H. 381, to amend the medical practice act, proposes to authorize the revocation of the license of a licentiate who has been convicted of any crime involving moral turpitude. The fact that the sentence has been suspended or that the convicted licentiate has been granted probation or any other leniency by the court or that he has not been required to suffer the punishment prescribed in the judgment is not to prevent the board from revoking the license of the convicted licentiate.

California

Bills Introduced.—A. 1683 proposes to grant to a hospital treating a person injured through the fault of another a lien on all claims, rights of action, judgments, settlements or compromises

accruing to the injured person by reason of his injuries. A. 2247, to amend the workmen's compensation act, proposes to permit an injured employee to select a doctor of chiropractic to treat his industrial injuries at the expense of the employer or his insurer. A. 2329 and A. 2509 propose that "Any hospital accepting pay patients who denies to any licensed physician and surgeon desiring to practice in such hospital for the reason that the physician and surgeon denied such opportunity is not a member of any association or society of physicians and surgeons shall be liable in damages in an amount not less than one thousand dollars (\$1,000), which may be recovered in an action at law brought for that purpose." A. 2439 proposes to prohibit the operation of a clinic or dispensary without a permit from the department of health. A. 2471 proposes to establish a tax-supported system of compulsory health insurance. S. 980, to amend the law permitting the court in any civil or criminal proceeding to appoint one or more expert witnesses to investigate and testify concerning matters on which the court deems expert evidence advisable, proposes to give this right also to juvenile courts. A. 1854 proposes to permit drugless practitioners to execute the certificate as to freedom from syphilis required of each party to a proposed marriage. A. 2148, to amend those portions of the insurance code authorizing the operation of nonprofit hospital service plans, proposes (1) to permit the formation and operation also of nonprofit medical service plans and (2) to permit hospital service plans to cover also the costs of "x-ray diagnosis and therapy and clinical laboratory procedures." A. 2474 proposes that "Every person engaged in the preparation of food to be served or sold to others, except agricultural employees and domestic employees, shall have obtained within the next preceding three months a certificate that he or she is free from every communicable disease from the state board of public health." A. 2088, to amend the medical practice act, proposes to make the following unprofessional conduct: "All advertising of the medical business in connection with which the holder of any certificate fails to use his name constitutes unprofessional conduct within the meaning of this chapter."

Connecticut

Bills Introduced.—S. 520, H. 1970, S. 1554 and H. 653 propose to authorize the licensing as an industrial attendant of any person who has pursued a course of study in the field of first aid and treatment for traumatic injuries and whose proficiency has been certified to by a duly qualified physician. An industrial attendant is to perform work only under the direction of a licensed physician and is to perform for their employer only such work as is directly connected with the operation of an industrial dispensary or hospital. S. 1070 and H. 2438 purport to be "A bill to prevent any doctor from receiving more than five dollars for making outside calls and more than \$1.50 for office calls, so that a poor person can live." S. 518 proposes to require every hospital in any city, town or fire district having a general fire alarm station and an electrically operated fire alarm system to be equipped with a fire alarm box or boxes of the type and character used in such district. S. 823 proposes that "Hospitals or other institutions, receiving state grants, and health institutions supervised by at least five licensed physicians may advise and prescribe for married persons regarding marriage problems and may give them access to medical information and supplies conducive to health, notwithstanding the provisions" of the law prohibiting the use of contraceptive articles. H. 1203, to amend the medical practice act, proposes, in effect, to reestablish a board of examiners for eclectic practitioners. H. 1813 proposes that "Hospitals or other health institutions receiving state grants and other health institutions under the supervision of practicing physicians may disseminate information or prescribe contraceptive devices to meet health problems of married women." S. 529 and H. 1979 propose to establish a system of compulsory health insurance. H. 1204, to amend the medical practice act, proposes (1) to eliminate the requirements that an applicant for a license to practice must be a citizen of the United States or must have declared his intention of becoming such, and (2) to require an applicant to have received a degree of Doctoris Medicinae from some incorporated and reputable medical college.

Delaware

Bills Introduced.—H. 37 and H. 69 propose that the medical council of Delaware consist of a licensed osteopath and the presidents of the two state boards of medical examiners, thus proposing to eliminate from membership on the council the chief justice of the state and substituting in his place an osteopath. H. 37 was stricken from the calendar, February 12.

Georgia

Bill Introduced.—H. 371 proposes that a hospital shall have a lien on all property brought into the hospital by any patient to secure the payment of all sums due for food, lodging, treatment, hospitalization or other accommodation.

Idaho

Bill Passed.—H. 207, to enact a so-called uniform pharmacy act, passed the house, February 19. This bill, if enacted, would prohibit a licensed physician from dispensing or using on patients drugs or medical supplies, such as sutures, compacts, compresses and surgical dressings, unless the physician possesses a special permit from the board of pharmacy.

Maine

Bills Introduced.—S. 344 proposes to enact what appears to be the uniform narcotic drug act. S. 410, to amend the chiropractic practice act, proposes (1) to condition the annual renewal of a license on presentation by the licensee of satisfactory evidence that in the preceding year he has attended one of two educational programs conducted and supervised by the chiropractic board and (2) to define chiropractic as "the science of locating and correcting interference with nerve transmission and expression, without the use of drugs or major surgery." The present law defines chiropractic as "the science of palpating and adjusting the segments and articulations of the human spinal column by hand only." S. 412 proposes to condition the issue of a license to marry on the presentation by each party to the proposed marriage of a physician's certificate that the party has been given a physical examination, including a standard blood test, not more than thirty days prior to the date on which the license is applied for and that in the physician's opinion the party is not infected with syphilis or, if so infected, is not in a stage of that disease whereby it may become communicable.

Maryland

Bill Introduced.—S. 260 proposes to enact a separate naturopathic practice act and to create a board of naturopathic examiners to examine and license applicants for licenses to practice naturopathy. The bill defines naturopathy to be "a drugless branch of the healing art and embraces the diagnosis and practice of physiological, psychological, physical, mechanical and material methods and agencies of healing." The bill proposes to prohibit naturopathic licentiates from using drugs or surgery.

Michigan

Bills Introduced.—S. 134 proposes to prohibit the retail sale or distribution of oil, tincture, elixir or fluid of valerium, valeric acid or crystals of ammonium valerate except on the prescription of a licensed physician or surgeon. The bill proposes, however, that no such prescription shall be filled until the person presenting the prescription places an inked impression of his thumb or finger on the prescription and writes in ink his name and address on the prescription. The dispensing druggist must then make a report of the sale, including the name and address of the buyer, to the commissioner of the Michigan state police. H. 119, to amend the law requiring both parties to a proposed marriage to possess a physician's certificate as to freedom from syphilis, gonorrhea or chancroid, proposes to limit the fee of the physician for making the necessary examinations and for executing such certificates to \$3. H. 129 proposes to prohibit the retail sale and distribution of venereal prophylactics except by licensed physicians and registered pharmacists. H. 133 proposes to repeal the chiropractic practice act.

Minnesota

Bills Introduced.—H. 564 and S. 639 propose that "Any subordinate lodge of a fraternal organization may out of its funds provide medical services for its members and the families of such members and may make contacts [sic] with duly licensed physicians to perform such medical services."

Missouri

Bills Introduced.—S. 7 proposes to grant to every public hospital or clinic and every privately maintained hospital, clinic or other institution for the care of the sick supported in whole or in part by charity and treating a person injured through the fault of another a lien on all rights of action, claims, judgments, settlements or compromises accruing to the injured person by reason of his injuries. S. 15 proposes to require every person undertaking obstetric and gynecologic care of a pregnant woman to take or cause to be taken a sample of venous blood of such woman not later than twenty days after the first examination and to submit the sample to an approved laboratory for a standard serologic test for syphilis. H. 61 proposes to require every applicant for a license to practice any form of the healing art, as a condition precedent to examination and licensure by his respective professional board, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology to be given by a board of examiners in the basic sciences. Each member of the board must be a professor or an assistant or associate professor on the faculty of the University of Missouri, a state teachers' college of Missouri or a university or college of equal standing, and no member may be actively engaged in the practice of the healing arts. H. 62 proposes to prohibit any person licensed to practice any form of the healing art from using the prefix "Doctor" or "Dr." in connection with his name in any letter, business card, advertisement, prescription blank, sign or public listing or display without affixing thereto suitable words or letters designating the degree held and representing the profession he is authorized to practice. H. 63 proposes to authorize the attorney general or any prosecuting attorney to institute an action to enjoin any person from the unauthorized practice of medicine and surgery. H. 64 proposes to require every person licensed to practice medicine and surgery in the state to register biennially with the state board of health and at that time to pay a registration fee of \$1. H. 67, to amend the medical practice act, proposes to require applicants for licenses to practice medicine and surgery, in addition to the qualifications now required by law, to have completed a premedical education consisting of a minimum of sixty semester hours of college work.

Nebraska

Bills Introduced.—Bill 187 proposes to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of a physician's certificate that the party is free from any venereal, contagious and infectious disease. Bill 236, to amend the basic science act, proposes that the board of examiners in the basic sciences shall consist "of at least one member of the profession of medicine and surgery, one member of the profession of osteopathy and one member of the profession of chiropractic." Bill 252 proposes to authorize the state treasurer to credit 10 per cent of all fees remitted into the state treasury by each of the special boards, divisions, bureaus and commissions, including the state boards of examiners in medicine, osteopathy, chiropractic, dentistry, optometry and pharmacy, to the general fund of the state for the purposes provided by law.

Nevada

Bills Introduced.—S. 15 proposes to make it the duty of the state board of health to formulate a plan for the care and treatment of indigent persons suffering from cancer and to establish and designate standard requirements for the organization, equipment and conduct of cancer units or departments in general hospitals in the state. The board is also to be directed to formulate and put into effect an educational plan for preventing cancer throughout the state and for aiding in the early diagnosis of the disease. The bill also proposes to appropriate \$50,000 for the ensuing two years for the purposes stated. A. 62 proposes to enact an entire new medical practice act, which, among

other things, will permit the issuance of a limited license to practice physiotherapy to persons not possessing the qualifications required of applicants for licenses to practice medicine and surgery without restriction. A license to practice physiotherapy is not to permit the holder to administer drugs or to diagnose or prescribe medicines or to practice medicine as defined in the bill except to treat diseases under the written prescription of a duly licensed doctor of medicine or osteopathy. The bill defines physiotherapy as the use of "actino therapy, hydrotherapy, machino therapy, thermo therapy excepting those procedures involving general hyperpyrexia, and electro therapy, exclusive of the x-ray, radium, electro coagulation, desiccation, and cauterization or other means involving tissue destruction." The bill also proposes to permit a registered nurse to give anesthetics for any regularly licensed physician under his direction for minor surgery, obstetrics or in any emergency.

New Hampshire

Bill Introduced.—H. 312 proposes that "all persons handling food in any public eating house shall submit to a physical examination at least once in every twelve months."

New Jersey

Bill Introduced.—A. 4 proposes to repeal all laws regulating the practice of the healing art.

New Mexico

Bills Introduced.—H. 83 proposes to enact a separate naturopathic practice act and to create an independent board of naturopathic examiners to examine and license applicants for licenses to practice naturopathy. A license to practice naturopathy, the bill states, is to entitle the holder to diagnose and treat human beings as taught in standard chartered naturopathic colleges, schools or universities. H. 88 proposes to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of a physician's certificate that the party not more than thirty days prior to the application for the license has been given such an examination, including a standard serologic test, as may be necessary for the discovery of syphilis and that, in the opinion of the physician, the person is either not infected with syphilis or if so infected is not in any stage of that disease which may become communicable to the married partner. H. 123 proposes to require every applicant for a license to practice any form of the healing art, as a condition precedent to examination and licensure by his respective professional board, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology to be given by a board of examiners in the basic sciences. The board is to consist of five members, none of whom may be actively engaged in the practice of the healing art or any branch thereof.

North Dakota

Bill Introduced.—H. 219 proposes to enact a separate naturopathic practice act and to create a board of examiners to examine and license applicants for licenses to practice naturopathy. The bill defines naturopathy as "the act and science of applied therapy as heretofore or hereafter taught by the recognized schools and colleges of naturopathy, except materia medica and major surgery." The bill provides that naturopathy and osteopathy shall be construed as synonymous terms and that "Sanipractic and Drugless Physicians shall be interpreted as the same as Naturopathy and its practice, and shall hereby be governed and regulated by this act and law." This bill was indefinitely postponed by the House, February 21.

Bills Passed.—The following bills passed the House, February 21: H. 261 proposing so to amend the chiropractic practice act as to condition the annual renewal of a license to practice chiropractic on the presentation by the licensee of evidence that in the preceding year he has attended a post graduate course in an accredited chiropractic school or college or has attended at least a two day session of the "educational" program as arranged by the North Dakota Chiropractic Association; and H. 301 proposing to require licensed osteopaths to renew their licenses annually and to condition the renewal on the payment of a fee of \$3 and presentation of evidence that the licensee

has attended at least two days of the annual "educational" program and meeting conducted by the North Dakota State Osteopathic Association, or its equivalent, in the preceding year.

Ohio

Bills Introduced.—S. 142 proposes to require every physician who attends any woman pregnant with child for conditions relating to pregnancy during the period of gestation or delivery to take or cause to be taken a sample of her blood at the time of the first examination or within fifteen days thereafter and to submit the sample to an approved laboratory for a standard serologic test for syphilis. S. 260, to amend the medical practice act, proposes that "the practice of spiritual healing as an integral part of the mode or worship of an established religious denomination shall not be regarded as the practice of medicine." Substitute H. 101 proposes a new system for the statewide registration of births, deaths and other vital statistics.

Oregon

Bills Introduced.—H. 361 proposes that "Whenever any person engaged in the practice of a profession licensed by the state of Oregon shall permit the name of a person who has been dead for more than one year to remain upon the doors or windows or any other conspicuous place upon the premises from which he is conducting such professional practice or shall permit the name of a person who has been dead for more than one year to appear upon any letterhead or other printed matter the circulation of which is under such practitioner's control and to appear thereon in connection with his own name shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not more than one thousand dollars (\$1,000)." H. 382, to amend those provisions of the workmen's compensation act authorizing an employer to contract with a third person for the rendering of necessary medical and hospital care to employees, proposes that every such contract shall provide (a) that the contractor shall furnish all medicines and medical supplies prescribed by the attending physician, (b) a reasonable choice of physicians and/or specialists in the major branches of the medical profession and (c) hospitalization, when required, to be furnished in hospitals accredited by the American Medical Association. S. 248 proposes apparently that no person engaged in the practice of any healing art shall be denied the privilege of attending any inmate in a county hospital.

Pennsylvania

Bill Introduced.—S. 140 proposes a procedure to reimburse hospitals treating indigent persons injured in motor vehicle accidents.

South Dakota

Bill Introduced.—H. 205, to amend the medical practice act, proposes apparently to eliminate the requirement in the present law that an applicant for a license to practice medicine must have served an internship in an approved hospital.

Texas

Bills Introduced.—H. 79 proposes to condition the issue of a license to marry on the presentation by each party to the proposed marriage of the certificate of a physician that within fifteen days of the date of application for a license he has thoroughly examined the party and caused to be made standard serologic tests and such other laboratory procedures as are essential to the determination of freedom from syphilis and all other venereal diseases and that the results of such examinations, tests and history indicate that the party is free from any transmissible condition of syphilis. H. 189 proposes to enact a separate chiropractic practice act and to create an independent board of chiropractic examiners to examine and license applicants for licenses to practice chiropractic. The license to practice chiropractic proposed in the bill is not to authorize a holder to prescribe medicine or perform surgery, but chiropractors are to be permitted to render first aid, sign health cards and death certificates, and enter hospitals within the state for the purpose of adjusting their patients or inmates thereof. H. 324 proposes to enact a separate naturopathic practice act and to create an independent naturopathic examining board. The bill proposes to define naturopathy as the "Diagnosis and

practice of physiological, mechanical, and material science of healing as follows: The physiological and mechanical sciences such as the mechanotherapy, articular manipulation, corrective and orthopedic gymnastics, neurotherapy, Psychotherapy, Hydrotherapy, and mineral baths, electrotherapy, thermotherapy, phototherapy, chromotherapy, vibrotherapy, thalmotherapy, and dietetics, which shall include the use of foods of such biochemical tissue building products and cell salts as are found in the normal body; and the use of vegetal oils and dehydrated and pulverized fruits, seeds, barks, herbs, roots and vegetables uncompounded and used in their natural state."

Utah

Bill Introduced.—H. 130, to amend the medical practice act, proposes apparently to permit licensed naturopaths to practice "in accordance with the tenets of the professional schools of naturopathy recognized by the department of registration." This bill was reported favorably to the House, February 19.

Washington

Bills Introduced.—S. 91 proposes to make the facilities of the McKay memorial research hospital available for general hospital care and treatment of persons entitled to such service at public expense. S. 93 and H. 343 propose to create within the Department of Social Security a subdivision to be known as a division for physically handicapped to provide (1) such medical and surgical care as will tend to alleviate or remove causes of disability, (2) for vocational adjustment and training and (3) more adequate maintenance than is now available for physically disabled persons who are in need. S. 191 proposes to create in the Department of Labor and Industry the office of chief medical adviser and a board to be known as the State Medical Advisory Board. The board is to meet with the chief medical adviser and the director of labor and industries to discuss and advise on all problems dealing with the diagnosis, care, treatment and operative technic of victims of industrial accidents and occupational disease and as to the reasonableness of charges to be made by a physician, surgeon, hospital, druggist or any other person rendering service or furnishing medicine or drugs to an injured workman. The director of labor and industries with the aid of the chief medical adviser and the counsel and advice of the state medical advisory board is to adopt a fee bill of the maximum charges which may be made by any physician or other person rendering services or medicines because of a disability suffered while engaged in extrahazardous work. Any fee or charge in excess of the maximum contained in the fee bill referred to is to be invalid as to the excess. H. 175 proposes to authorize the establishment of public hospital districts except in class A and first class counties. The public hospital districts, when established, are to own and operate hospitals and supply hospital services to the residents of the territory within the jurisdiction of the district. H. 202 proposes that no corporation or other organization or any individual or any governmental subdivision shall require that any individual, as a condition precedent to obtaining or retaining employment, shall be compelled to receive or be given vaccine, serum shots, toxins, antitoxins or serologic by-products "nor adopt rules or regulations requiring such compulsory methods." H. 370, to supplement the medical practice act, proposes to require every licensed physician to renew his license with the Director of Licenses on or before July 1 of each year, and to pay at that time a fee of \$5. H. 371 proposes to enact a separate drugless therapeutics practice act and to require the director of licenses to appoint an examining committee of three practitioners of drugless therapeutics to examine applicants for licenses to practice drugless therapeutics. The bill proposes to define drugless therapeutics as "the practice of the psychological, mechanical, and material sciences of healing, for the relief of any wound, fracture, bodily injury or disease, either mental or physical, as follows: The psychological sciences, such as psychotherapy and suggestive therapy; the mechanical sciences, such as mechanotherapy, physiotherapy, electrotherapy, thermotherapy, phototherapy, chromotherapy, vibrotherapy, concussion and pneumatotherapy; and the material sciences, such as dietetics and food sciences, and external applications; but shall not mean the administering, prescribing or using of drugs or medicines, either internally or externally." S. J. Res. 10

proposes to submit to the electors a proposal so to amend the constitution of the state as to authorize the legislature to establish a state owned and operated lottery, the proceeds from which shall be confined to old age assistance, public assistance and publicly owned hospitals. S. 246 proposes to authorize every board of directors of school districts of cities of the first class to arrange at school expense for the medical examination of students whose parents or guardians are unable to pay for the same. H. 360 proposes to repeal the law authorizing the compulsory sterilization of certain socially inadequate inmates of state institutions. H. 310 proposes to enact what it designates as the uniform pharmacy act. The bill does not expressly exempt physicians from its provisions and is framed in such broad language as to raise a doubt as to the right of a licensed physician who has not obtained an additional license from the board of pharmacy to dispense or use on a patient drugs and such medical supplies as absorbent cotton, bandages, gauze, sutures, compacts, compresses and surgical dressings.

West Virginia

Bill Introduced.—H. 246 proposes to prohibit the operation of a hospital unless licensed by the state committee on hospitals, which the bill proposes to create as a division of the state department of health.

Wisconsin

Bills Introduced.—S. 160 proposes that in prosecutions involving the issue of the operation of a motor vehicle while under the influence of intoxicating liquors the court may admit evidence of the amount of alcohol in the defendant's blood at the time alleged as shown by a chemical analysis of his breath,

urine or other bodily substance. A. 245 proposes to authorize the organization and operation of cooperative associations to provide medical or hospital care for their members. The bill also proposes that no hospital supported in whole or in part by public funds or which is wholly or partially tax exempt shall deny to any physician the facilities of the hospital nor discriminate against him in their use because the physician is affiliated with a cooperative association which undertakes to furnish medical and hospital service to its members. The bill also proposes that no physician being otherwise eligible for membership shall be excluded from membership in the state medical society or any county medical society because of his affiliation with such a cooperative association.

Wyoming

Bill Passed.—S. 78 passed the senate, February 11, proposing that, whenever in any civil or criminal proceeding issues arise on which the court deems expert evidence desirable, the court, on its own motion, or on the request of either party, may appoint one or more experts, not exceeding three on each issue, to testify at the trial.

Bills Introduced.—S. 94, to amend the medical practice act, proposes to add the following as an additional ground for the revocation of a license to practice medicine: "failure, neglect or refusal [of the licentiate] to take a post graduate course of study in medical subjects in a qualified medical school for a period of not less than six weeks in every five years." S. 89 proposes a new act relating to the registration, compilation, preservation data pertaining to births, deaths, stillbirths, adoptions, legitimations and marital status.

OFFICIAL NOTES

RADIO BROADCASTS

"Doctors at Work" is the title of the sixth annual series of dramatized radio programs being presented by the American Medical Association and the National Broadcasting Company.

The series opened Wednesday, Nov. 13, 1940 and will run for thirty consecutive weeks, closing with a broadcast from the annual session at Cleveland on June 4. The program is scheduled for 10:30 p. m. eastern standard time (9:30 central, 8:30 mountain, 7:30 Pacific time) over the Blue network, other N. B. C. stations and Canadian stations.

The programs are broadcast on what is known in radio as a sustaining basis; that is, the time is furnished gratis by the radio network and local stations, and no revenue is derived from the programs. Therefore, local stations may or may not take the programs at their discretion, except those stations which are owned and operated by the National Broadcasting Company.

Some radio stations may be unable to broadcast the program at the regular scheduled time and may transcribe and broadcast it at another hour or even on another day. It is advisable therefore to verify the time by reference to local newspapers or by telephoning the local Blue network stations.

The programs will dramatize what modern medicine offers the individual in the way of opportunities for better health and the more successful treatment of disease. Incidental to this main theme the programs will explain the characteristics of the different fields of modern medicine and its specialties.

Descriptive posters for local distribution may be had gratis from the Bureau of Health Education, American Medical Association, 535 North Dearborn Street, Chicago. Program titles will be announced weekly in *THE JOURNAL* and monthly in *Hygieia*, the Health Magazine.

Tickets are available for each broadcast. Address the Bureau of Health Education, American Medical Association, 535 North Dearborn Street, Chicago. Tickets are free, but a stamped self-addressed envelop should accompany requests.

The next three programs to be broadcast, together with their dates and titles, are as follows:

- March 5. Fit to Fight.
- March 12. Brain Surgeon.
- March 19. First Line of Defense.

ADDRESSES BY OFFICIAL STAFF

DR. PAUL C. BARTON:

- March 10—Y. M. C. A. Forum, Chicago.
- March 19—Woman's Auxiliary to the Jackson Park Branch of the Chicago Medical Society.
- March 26—Avondale Methodist Church, Chicago.

DR. W. W. BAUER:

- Feb. 28-March 1—National Conference for Cooperation in School Health Education, New York.
- March 3—Chicago Medical Society Woman's Auxiliary, North Shore Branch, Chicago.
- March 14—Bowen High School, Chicago.

DR. MORRIS FISHBEIN:

- March 16—Jewish Community Center, Atlantic City, N. J.
- March 17—Executive Club, Asheville, N. C.

DR. FRANK H. LAHEY:

- March 10—Southeastern Surgical Congress, Richmond, Va.
- March 12—New York Surgical Society, New York.
- March 13—American Institute of Electrical Engineers, Steinmetz Lecture, Selenelectady, N. Y.
- March 19—Bronx County Medical Society, New York.
- March 24—New Jersey State Medical Society, Newark.

DR. CARL M. PETERSON:

- March 3—Industrial Hygiene Course for Nurses, Marquette University, Milwaukee.

DR. PAUL A. TESCHNER:

- March 6—Ladies Aid of Community Church, Gurnee, Ill.
- March 14—Chicago West Town Auxiliary to the Railway Mail Association Woman's Club, Maywood, Ill.

Medical News

MEDICAL NEWS

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

JOUR. A. M. A.
MARCH 1, 1941

CALIFORNIA

Dr. Wilbur to Retire as President of Stanford.—Dr. Ray Lyman Wilbur observed his twenty-fifth anniversary as president of Stanford University January 19. An editorial tribute in the *San Francisco Call-Bulletin*, January 24, also announced Dr. Wilbur's retirement at the close of the present year. Dr. Wilbur was born in Boonesboro, Iowa, April 13, 1875 and graduated at Cooper Medical College, San Francisco, in 1899. His association with Stanford began in 1896 when he was instructor in physiology; subsequently he was lecturer and demonstrator in physiology at Cooper, 1899-1900, and at Stanford, assistant professor of physiology, 1900-1903, professor of medicine, 1909-1916, and dean of the medical school, 1911-1916. He became president of the university in 1916. From 1929 to 1933, on leave of absence from the university, he served as Secretary of the Interior in President Hoover's cabinet. Among other positions Dr. Wilbur served as chairman of the Federal Oil Conservation Board, 1929-1933; chairman of the Committee on the Cost of Medical Care, 1927-1935; president of Better Homes in America, 1929-1935; chairman of the White House Conference on Child Health and Protection, 1929-1931; chairman of the National Advisory Committee on Illiteracy, 1930-1931. Dr. Wilbur has been a trustee of the Rockefeller Foundation since 1923 and of the General Education Board since 1930. He was President of the American Medical Association, 1923-1924, and a member of its Council on Medical Education and Hospitals, 1920-1923, and since 1925; he has been chairman of the Council since 1929. He has also been president of the Association of American Medical Colleges and of the California Academy of Medicine. He has been president of the California Physicians Service since 1939 and of the American Social Hygiene Association since 1926.

DISTRICT OF COLUMBIA

Two Cases of Typhus Fever.—Two cases of typhus fever have been reported in a man and woman working in the same eating establishment in Washington, according to the *Washington Star*, February 11. The District health department has started a program to prevent the spread of the disease.

Personal.—Dr. Custis Lee Hall, Washington, recently received a silver tray and candelabra from the Kiwanis Club in recognition of his sixteen years' service in treating crippled children in the Kiwanis Clinic. Dr. Hall has retired from active practice in the clinic but will continue in an advisory capacity, it is reported.

Society News.—The Medical Society of Virginia, Maryland and the District of Columbia devoted a recent meeting to two symposiums. The speakers in a symposium on the modern concept of pneumonia were Drs. Theodore J. Abernethy, Oscar B. Hunter, Claude Moore and James A. Gannon, Washington. A symposium on the diagnosis and treatment of acute osteomyelitis was presented by Drs. Custis Lee Hall, Guy W. Leadbetter, Washington, and Martin B. Hiden, Leesburg, Va. Mr. Constantine Brown, foreign news editor of the *Washington Evening Star*, was guest speaker at a luncheon.

FLORIDA

New President of State Board.—Dr. Shaler A. Richardson, Jacksonville, has been elected president of the state board of health, succeeding the late Dr. Nicholas A. Baltzell, Marianna. The vacancy on the board created by Dr. Baltzell's death has been filled by Dr. Herbert L. Bryans, Pensacola.

Officers of Health Association.—Dr. Leander J. Graves, Tallahassee, director of the Leon County health unit, was chosen president of the Florida Public Health Association at its meeting in December, succeeding Dr. Albert B. McCreary, Jacksonville (now deceased). Miss Mary Matthews, West Palm Beach, is vice president, and Dr. Edward M. L'Engle, Jacksonville, is the secretary-treasurer. Orlando was designated as the place for the 1941 annual session.

Physical Examinations for Servants.—An ordinance requiring physical examinations and health cards for domestics in Coral Gables became effective on February 1. Newspapers

reported that at a recent meeting the city commission decided to include domestics in the ordinance which provides for the health cards for food handlers in public places. The card will have an identification from the police department on one side and a certificate of good health on the other. In the future only domestics with both identifications will be permitted to work in Coral Gables. The city health department will conduct the examinations, which will include a blood test. A fee of 50 cents will be charged for the examinations. An "open house" will be held every six months.

ILLINOIS

Dr. Orr to Speak in Springfield.—Dr. Hiram Winnett Orr, Lincoln, Neb., will deliver the ninth annual lecture of the Springfield Medical Club at the Leland Hotel, Springfield, March 20. His subject will be "New Methods in the Management of Compound Fractures."

New Laboratory Building.—New accommodations have been provided for Flint, Eaton & Company, manufacturers of pharmaceutical preparations, Decatur. One half of the three story building is new construction; the other half has been remodeled. The building houses the control laboratories, library, research and manufacturing departments. An "open house" was held recently to celebrate the completion of the new structure.

Chicago

Personal.—Dr. James B. Herrick has been reappointed chairman of the medical advisory committee of Sunset Camp, a convalescent colony sponsored by the Chicago Heart Association for children afflicted with diseases of the heart. Sunset Camp is situated near Bartlett in the Fox River valley. It is free to children whose parents cannot afford to pay for their treatment.

Memorial Plaque to Dr. Hruby.—A bronze memorial plaque was recently unveiled in the Chicago Municipal Sanitarium and dedicated to Dr. Allan J. Hruby. Dr. Hruby served as dispensary physician to the sanitarium 1917-1918; superintendent, 1918-1923, and secretary and member of the board of directors from 1931 until his death on Nov. 18, 1939. Dr. Hruby's son, Allan Jr., and daughter, Jean, removed the covering from the tablet.

Society News.—The department of otolaryngology of Rush Medical College presented the program before the Chicago Laryngological and Otological Society, January 6. Among others, Drs. Gordon H. Scott and Linden J. Wallner spoke on "Chondroma of the Septum" and "Orbital Cellulitis" respectively. The Chicago Council of Medical Women was addressed, January 8, by Dr. Beulah Cushman on "Vascular Changes in the Eye"; Marion Hood, Ph.D., "Parasitic Infestations: Slides and Actual Specimen," and Dr. Gertrude M. Engbring, "Medical Work of Hildegard of the Rhine."—Papers were presented before the Chicago Roentgen Society, January 9, by Drs. Byrl R. Kirklin and Harry M. Weber, Rochester, Minn., on "Roentgenologic Aspects of Small Bowel Lesions," and Albert M. Snell, Rochester, "Clinical Phases of Small Bowel Lesions."—At a meeting of the Chicago Pathological Society, January 13 the speakers included Drs. Arthur Earl Walker on "Astrocytosis Arachnoideae Cerebelli, a Rare Manifestation of von Recklinghausen's Neurofibromatosis," and Hans P. Popper, "Lipoid Nephrosis and Fat Deposition in the Kidney."—Dr. Ludvig Hektoen was chosen honorary chairman of the board of governors of the Institute of Medicine of Chicago at its recent annual meeting. Dr. Hektoen, who has been chairman of the board, was succeeded by Dr. William F. Petersen. Other officers are Drs. Edwin W. Ryerson, vice chairman of the board; Rollin T. Woodyatt, president of the institute; George H. Coleman, secretary, and Grant H. Laing, treasurer.

INDIANA

Personal.—Dr. Theodore S. Schuldt, Pierceton, has been named health officer of Kosciusko County, filling the unexpired term of Dr. Max D. Garber, Warsaw, who resigned to do research work at Johns Hopkins Hospital, Baltimore, it is reported.

Postgraduate Courses.—An announcement has been received concerning postgraduate courses to be held at Indiana University School of Medicine, Indianapolis, this year. They are: General practitioners, April 28-May 2; pediatrics, March 5, 12, 19 and 26; cardiology, June 23-27; obstetrics, March 14-26 and July 7-19; otolaryngology, April 13-26.

Society News.—The Indianapolis Medical Society was addressed, February 25, by Drs. Reuben A. Solomon on "Spontaneous Pneumothorax"; Lyman T. Meiks, "Lipoid Pneu-

monia," and Ralph U. Leser, "Pulmonary Emphysema."—Max D. Steer, Ph.D., assistant professor of speech at Purdue University, Lafayette, discussed "Clinical Aspects of Stuttering" before the Tippecanoe County Medical Society in Lafayette, January 14.—The Northeastern Indiana Academy of Medicine was addressed in Kendallville, January 30, by Dr. Clyde G. Culbertson, Indianapolis, on "The Laboratory in General Practice."

KANSAS

Society News.—The Wyandotte County Medical Society was addressed, February 18, by Drs. Maurice V. Laing, Kansas City, on "Carcinoma of the Breast" and John A. Billingsley, Kansas City, "Value of Fundus Examination with Fundus Pictures." The society was addressed February 4 by Drs. Clay E. Coburn, Kansas City, on "The Work of the Local Draft Examination Boards," and Forrest L. Loveland, Topeka, "Medicine's Part in the National Defense Program."

Spring Clinical Assembly.—The Sedgwick County Medical Society will conduct its fourth spring clinical assembly at the Allis Hotel, Wichita, March 18. Dr. George T. Pack, assistant clinical professor of surgery, Cornell University Medical College, New York, will be the guest speaker. His subjects will be "Cancer of the Breast" and "Cancer of the Stomach." Wichita physicians on the program include:

Dr. Joseph V. Van Cleve, Lymphopathia Venereum (Lymphogranuloma Inguinale).
Dr. Christian A. Hellwig, Pathology of the Thyroid Gland.
Dr. Anthony F. Rossitto, X-Ray Therapy in Endocrine Disturbances.
Dr. Claude C. Tucker, Pruritus Ani—Medical and Surgical Treatment.
Dr. Millard W. Hall, Hysterectomy—Clamp Method.
Dr. Vern L. Pauley, Anomalous Vessels.
Dr. George F. Corrigan, Pathological Physiology of the Liver.

Dr. Logan Clendening, Kansas City, Mo., has been selected as the speaker at the banquet.

LOUISIANA

Annual New Orleans Graduate Assembly.—The fifth annual meeting of the New Orleans Graduate Medical Assembly will be held at the Roosevelt Hotel March 3-6. Clinics will be conducted at the various hospitals March 7. The speakers will be:

Dr. Maurice C. Pincoffs, Baltimore, Pancreatitis.
Dr. Charles F. McKhann, Ann Arbor, Mich., Progress in the Control of Respiratory Disease.
Dr. Paul A. O'Leary, Rochester, Minn., The Eczemas.
Dr. Paul D. White, Boston, The Range of the Normal Heart.
Dr. Leo G. Rigler, Minneapolis, Benign and Malignant Tumors of the Stomach.
Dr. Lawrence W. Smith, Philadelphia, Reduced Temperature ("Refrigeration") as an Adjunct to the Treatment of Malignant Disease.
Dr. Ernest E. Irons, Chicago, Aspiration Pneumonia.
Dr. Eugene L. Bishop, Chattanooga, Tenn., Coordination of Malaria Studies and Control of Impounded Waters.
Dr. Arthur H. Ruggles, Providence, R. I., Observations on Shock Therapy in Psychosis.
Dr. Paul C. Colonna, Oklahoma City, Okla., Treatment of Compound Fractures.
Dr. Owen H. Wangensteen, Minneapolis, Studies in the Etiology of Acute Appendicitis.
Dr. George E. Binkley, New York, Treatment of Rectal Cancer.
Dr. George F. Cahill, New York, Present Urologic Conception of Non-specific Urinary Infections.
Dr. William Wallace Morrison, New York, Modern Otolaryngology for the General Practitioner.
Dr. Richard W. TeLinde, Baltimore, Organic Aspects of Uterine Bleeding.
Dr. Cecil S. O'Brien, Iowa City, Loss of Vision in Elderly People.
Dr. Louis E. Phaneuf, Boston, The Value of Conservative Obstetrics.
Dr. Frederick A. Collier, Ann Arbor, Postoperative Complications.

A joint meeting with the Orleans Parish Medical Society will be held Thursday evening with Dr. Wangensteen discussing "The Management of Acute Intestinal Obstruction" and Dr. Phaneuf, "Complete Tears of the Perineum."

MASSACHUSETTS

Society News.—Florien Heiser, Ph.D., Storrs, Conn., addressed the Massachusetts Psychiatric Society at its recent annual meeting on "The Social Etiology of Mental Disorder." Officers were elected as follows: Drs. Harlan L. Paine, North Grafton, president; William Franklin Wood, Belmont, vice president, and David Rothschild, Foxboro, secretary and treasurer.—The Worcester District Medical Society devoted its meeting in Worcester January 8 to a symposium on the surgical problem in biliary lithiasis; the speakers were Drs. John F. Kenney, Meyer Saklad, Frederic V. Hussey, Emanuel W. Benjamin and Eliot A. Shaw, all members of the staff of Memorial Hospital, Pawtucket, R. I.—Dr. Hallowell Davis, Boston, discussed "Clinical Significance of the Electroencephalogram" before the New England Society of Physical Medicine, January 22.

Public Medical Lectures.—The Harvard Medical School, Boston, opened a course of free public lectures on medical subjects, January 5, with Dr. William B. Breed discussing "The Common Cold and How to Treat It." Other lectures in the series are:

Dr. Joseph C. Aub, Hormones and Children, January 12.
Dr. Henry C. Marble, How Accidents Happen, January 19.
Dr. Alan R. Moritz, Medical Aids to Justice, January 26.
Dr. Oliver Cope, Modern Advances in Surgery, February 2.
Dr. Frederick F. Russell, Medical Problems Presented by Selective Service, February 9.
Dr. Maurice B. Strauss, Use and Abuse of Vitamins, February 16.
David B. Dill, Ph.D., Fatigue and Health, February 23.
Dr. Carl W. Walter, Transfusion of Blood and Blood Banks, March 2.
Dr. Reginald Fitz, The Pathway of Medical Discovery, March 9.

MICHIGAN

Personal.—Dr. James H. Kelsey, Cassopolis, has been appointed a member of the state board of medical examiners.—Dr. Fred M. Meader, director of medical service and deputy commissioner, Detroit Department of Health, retired on January 28; he has been with the department since 1920, newspapers reported, and is retiring on account of age.

Society News.—Dr. Hobart A. Reimann, Philadelphia, discussed "Treatment of Pneumonia" before the Calhoun County Medical Society in Battle Creek, February 4.—A symposium on pneumonia was presented before the Wayne County Medical Society, Detroit, January 20, by Drs. Alpheus F. Jennings, Emil M. Schbesta, Arthur W. Frisch and Alvin E. Price.

New State Bureau of Tuberculosis.—A bureau of tuberculosis has been created in the state department of health to provide a more intensive tuberculosis program. Dr. George A. Sherman, Pontiac, medical director and superintendent of the Oakland County Tuberculosis Sanatorium and president of the Michigan Tuberculosis Association, has been appointed director of the new unit. Heretofore tuberculosis work has been one of the several activities of the bureau of epidemiology.

Rural Community Builds Its Hospital.—The Addison Community Hospital, built largely by volunteer labor and at a cost of \$15,000, was dedicated in Addison recently as a monument to Dr. Bowers H. Growt. Residents of the rural community helped swell the building fund for this project, started by Dr. Growt, by staging benefit shows, dances, church suppers and rummage sales. Those who could not give money contributed their time and labor. The township boards of four adjacent townships voted an appropriation to help meet the expense. Dr. Growt graduated at the University of Maryland School of Medicine, Baltimore, in 1916.

MISSOURI

Dr. Doisy Awarded Gibbs Medal.—Edward A. Doisy, Ph.D., professor of biochemistry, St. Louis University School of Medicine, St. Louis, has been awarded the Willard Gibbs Medal for 1941. The medal is awarded annually by the Chicago section of the American Chemical Society. Dr. Doisy has been active in the study of vitamin K. He received his Ph.D. degree from Harvard University in 1920. He has served at Harvard Medical School as assistant in biochemistry, 1915-1917, and at Washington University School of Medicine, St. Louis, as instructor, associate and associate professor of biochemistry, 1919-1923, joining St. Louis University School of Medicine in 1923. He was honored with the gold medal of the St. Louis Medical Society in 1935; Philip A. Conné Medal, Chemists Club of New York, 1935, and the St. Louis Award in 1939. He was a member of the League of Nations Committee on Standardization of Sex Hormones in 1932 and 1935. He is a member of many scientific societies and has written numerous articles.

NEW JERSEY

Program on Hypertension.—Dr. Soma Weiss, Boston, addressed the Bergen County Medical Society in Hackensack, January 14, on hypertension. The address was followed by a panel discussion presented by Drs. Benjamin I. Aske, Arthur C. DeGraff, Asa L. Lincoln, Paul Reznikoff and Irving S. Wright, all of New York.

"Town Hall" Meeting.—The Academy of Medicine of Northern New Jersey and the Medical Society of New Jersey are sponsoring a "Town Hall" meeting, March 24, at the Mosque Theater, Newark. Dr. Frank H. Lahey, Boston, President-Elect of the American Medical Association, will speak on "The Health of the Nation."

Medal Awarded to Dr. Stanley.—Wendell M. Stanley, Ph.D., of the Rockefeller Institute for Medical Research, Princeton, received the gold medal of the American Institute of the City of New York at a dinner in New York, February 6. The award was given to Dr. Stanley in recognition of his work in "crystallizing the virus of tobacco mosaic, a feat which has opened up new fields of research, given birth to new ideas about the nature of important disease-producing agents and enlarged the human understanding of life." Dr. Stanley made an address at the dinner on his virus research.

NEW YORK

Personal.—A testimonial dinner was given to Dr. Henry T. Kelly, White Plains, January 11, in celebration of his completion of forty years of practice in White Plains. Dr. Malcolm Goodridge, president of the New York Academy of Medicine, gave an address. Dr. Kelly is chief of staff of the White Plains Hospital and is a former president of the Medical Society of the County of Westchester. The hospital staff and board of governors gave him a silver plate.

Public Lectures in Buffalo.—A series of lectures for the public was presented during January and February at the University of Buffalo School of Medicine, Buffalo, by members of the faculty. The speakers were:

- Dr. Earl D. Osborne, Carcinoma in Women—Can Women Prolong Their Lives? January 12.
- Dr. James E. King, What You Should Know About Syphilis, January 23.
- Dr. Herbert A. Smith, Appendicitis—How to Suspect It and What to Do About It, February 9.
- Dr. David K. Miller, Your Food and Your Health, February 23.

The lectures were arranged under the auspices of a new department of postgraduate and continuation teaching, of which Dr. Abraham H. Aaron is the director.

State to Distribute Sulfapyridine.—The New York State Department of Health began the distribution of sulfapyridine for the use of registered doctors of medicine and hospitals in the treatment of pneumococcal infections of patients for whom the purchase of the drug would prove a hardship, according to *Health News*. The drug will be distributed through certain of the regular laboratory supply stations. Certification of relief status or medical indigence will not be required, but physicians were requested to limit their requests in order to conserve the supply. The department has asked physicians to send to the proper health officers records of cases in which sulfapyridine is used.

New York City

Appointments at New York University.—The council of New York University has announced the following appointments to the college of medicine:

- Dr. Clair E. Folsome, assistant professor of obstetrics and gynecology.
- Drs. Willis S. Knighton, Samuel P. Oast and Brittain F. Payne, assistant clinical professors of ophthalmology.
- Dr. Francis A. Echlin, assistant clinical professor of neurosurgery.
- Dr. Harold B. Keyes, assistant clinical professor of surgery.

The Wyckoff Lectures.—The fourth series of the John Wyckoff Lectures, sponsored by the Phi Delta Epsilon fraternity, at New York University College of Medicine in memory of the late Dean Wyckoff, was delivered by Dr. John R. Paul, professor of preventive medicine at Yale University School of Medicine, New Haven, February 4-5. The subject of Dr. Paul's lectures was "The Clinical Epidemiology of Poliomyelitis."

Conference on Tuberculosis.—The thirty-ninth annual meeting and conference on tuberculosis of the New York Tuberculosis and Health Association, meeting jointly with the Tuberculosis Sanatorium Conference of Metropolitan New York, will be held March 4 at the Hotel Pennsylvania. At a luncheon meeting Dr. Wilson G. Smillie, professor of public health and preventive medicine, Cornell University Medical College, will speak on "The Ebb and Flow of Public Health," and Hon. Arthur J. Altmeyer, chairman of the Social Security Board, Washington, D. C., on "Social Security and National Security." There will be papers on a program of vocational activity for the sanatorium, staff education of public health nurses in tuberculosis work and tuberculosis among draftees.

Hospital News.—The department of urology, the James Buchanan Brady Foundation, of the New York Hospital marked the twentieth anniversary of its founding with a special program January 15. There was a clinical program in the surgical amphitheater in the afternoon and in the evening the following program was presented at the New York Academy of Medicine: Drs. Roy B. Henline on "Adequate

Treatment of Prostatic Disease, with Special Reference to Pathology"; Thomas J. Kirwin, "Management of Carcinoma of the Renal Pelvis"; Oswald S. Lowsley, "The Role of the Brady Foundation in Urology at the New York Hospital," and Colin L. Begg, "Reminiscences in Urology in New York City." Dr. Begg died a few hours after this address, newspapers reported.—Dr. Isidore Snapper, professor of medicine, Peiping Union Medical College, Peiping, China, gave a lecture at Mount Sinai Hospital, January 13, on "Chinese Lessons to Western Medicine."

OHIO

State Pathologists Meet.—The Ohio Society of Pathologists held its midwinter meeting at the Institute of Pathology, Western Reserve University, Cleveland, January 18, with the following speakers: Drs. Howard T. Karsner on "Paget's Disease of the Nipple"; Francis Bayless, "Juxtaglomerular Apparatus," and Harry Goldblatt, "Experimental Observations of Hypertension Associated with Unilateral Renal Disease."

Personal.—Dr. David Rolland Williams, Girard, was the guest of honor at the annual banquet of the Mahoning County Medical Society, Youngstown, January 21, marking his completion of fifty years of medical practice. Dr. Williams at one time practiced in Youngstown and is a nonresident member of the society. The Trumbull County Medical Society also gave a dinner in honor of Dr. Williams in December in Warren. Girard is in Trumbull County.—Dr. Harry Bookwalter, Columbiana, was recently honored by the Kiwanis Club of Columbiana and other friends at a dinner celebrating his completion of forty years in the practice of medicine.—Dr. Alfred E. Ewing, McDonald, recently retired after thirty-seven years of service with the U. S. Steel Corporation, twenty-four years at the McDonald mills. Officials and employees of the mills gave a banquet in his honor and presented him with a watch.—Dr. and Mrs. Franklin E. Michener, Tiffin, celebrated their golden wedding anniversary on January 5 with a reception at their home.

OREGON

Lectures by Dr. Wangenstein.—Three lectures were given by Dr. Owen H. Wangenstein, Minneapolis, at the University of Oregon Medical School, Portland, February 13-15, under the auspices of the Portland Academy of Medicine. His subjects were "Studies in the Etiology of Appendicitis," "Practical Aspects of the Therapeutic Problem in Bowel Obstruction" and "The Ulcer Problem Viewed from the Standpoint of Etiology and Therapy."

PENNSYLVANIA

New Commission on Nutrition.—The board of trustees of the Medical Society of the State of Pennsylvania, at a meeting in December, established a commission on nutrition and deficiency diseases in accordance with a recommendation adopted by the house of delegates. Dr. Herbert T. Kelly, Philadelphia, has been appointed chairman of the commission, which proposes to disseminate the newer knowledge of nutrition and to study the causes, prevention, early recognition and medical management of nutritional deficiency.

Society News.—Dr. Harrison F. Flippin, Philadelphia, addressed the Dauphin County Medical Society, Harrisburg, February 4, on "Sulfathiazole and Sulfapyridine in the Treatment of Pneumonia."—Dr. Murray M. Copeland, Baltimore, addressed the Harrisburg Academy of Medicine, February 18, on "Clinical Management of Diseases and Tumors of the Breast."—Dr. Thomas Butterworth, Reading, addressed the Lebanon County Medical Society, Lebanon, February 11, on "Ten Most Common Skin Diseases."—Dr. William Leo Mullins, Pittsburgh, addressed the Lawrence County Medical Society, New Castle, February 6, on "Some Coronary Problems."—Dr. John A. McKay, Mercer, addressed the Mercer County Medical Society, Greenville, February 12, on "The Nature and Present Status of the Filtrable Viruses."—Dr. Russell L. Cecil, New York, gave an address on "Recent Advances in Chemotherapy of Pneumonia" before the Cambria County Medical Society, Johnstown, February 13.

Philadelphia

Fellowship in Penal Psychiatry.—A fellowship in penal psychiatry under the Pennsylvania Plan for Intramural Training in Penal Psychiatry is available at the University of Pennsylvania. The fellowship is provided by the Commonwealth Fund, will run two years and carries a stipend of \$2,400 the first year and \$2,800 the second year. Minimal qualifications

specify a graduate physician not older than 35, having accredited internship and at least two years of acceptable psychiatric training. Address inquiries to Dr. Philip Q. Roche, secretary of the committee on medicolegal fellowships, 255 South Seventeenth Street, Philadelphia.

Marriage Counsel Service.—Marriage Counsel, a non-profit-making community service, was started in 1932. The methods used are individual interviews, group talks, a lending library of selected books and pamphlets on marriage and family relationships, and the publication of articles evaluating and interpreting this service. The Marriage Counsel is supported by fees, by membership and by voluntary contributions. Fees are an almost negligible source of support, however, a report points out. The agency has participated in yearly courses in family relationships in several colleges. Seminar discussion groups have been held for physicians, ministers and teachers. A recent report states that there are about twenty-seven recognized counseling services in the United States. Dr. Frederick H. Allen is chairman of the executive board of sponsors of the Philadelphia organization and the counselors are Mrs. Stuart Mudd and Drs. Elizabeth Kirk Rose and Robert A. Matthews. The headquarters are at 253 South Fifteenth Street.

TEXAS

Spring Clinical Conference.—The Dallas Southern Clinical Society will sponsor its thirteenth annual spring clinical conference, March 17-20, with headquarters at the Hotel Adolphus. There will be twelve guests who will give addresses at general assemblies. There will be also lectures by Dallas physicians, round table luncheons and clinics each afternoon. The guests will be:

Dr. Clifford J. Barborka, associate in medicine, Northwestern University Medical School, Chicago.

Dr. Soma Weiss, Hersey professor of the theory and practice of physics, Harvard Medical School, Boston.

Dr. William E. Chamberlain, professor of radiology and roentgenology, Temple University School of Medicine, Philadelphia.

Dr. Harry Goldblatt, professor of experimental pathology and associate director, Institute of Pathology, Western Reserve University School of Medicine, Cleveland.

Dr. Henry G. Poncher, associate professor of pediatrics, University of Illinois College of Medicine, Chicago.

Dr. Marion B. Sulzberger, assistant clinical professor of dermatology and syphilology, New York Post-Graduate Medical School, Columbia University, New York.

Dr. Leland S. McKittrick, instructor in surgery, Harvard Medical School, Boston.

Dr. John J. Morton Jr., professor of surgery, University of Rochester School of Medicine and Dentistry, Rochester, N. Y.

Dr. James C. Sargent, clinical professor and director of the division of urology, Marquette University School of Medicine, Milwaukee.

Dr. Norman F. Miller, professor of obstetrics and gynecology, University of Michigan Medical School, Ann Arbor.

Dr. Derick T. Vail Jr., professor of ophthalmology, University of Cincinnati College of Medicine.

Dr. Fletcher D. Woodward, professor of diseases of the ear, nose and throat, University of Virginia Department of Medicine, Charlottesville.

There will be a smoker on the first evening, and the annual banquet will be held Thursday evening, March 20.

GENERAL

Society News.—Dr. Ruth E. Boynton, Minneapolis, director of the student health service, University of Minnesota, was recently reelected president of the American Student Health Association.—The annual meeting of the American Industrial Hygiene Association will be held the week beginning May 5 in Pittsburgh. Gordon C. Harrold, Ph.D., Industrial Hygiene Laboratory, Chrysler Corporation, 7900 Joseph Campau Avenue, Detroit, is the secretary.—Dr. Harold M. Camp, Monmouth, Ill., is the new president of the National Conference on Medical Service and Dr. Joseph D. McCarthy, Omaha, secretary. The conference met at the Palmer House, Chicago, February 16.

Bowling Tournament Suggested for Cleveland Session.—The organization of an American Medical Bowling Association has been suggested with a view to holding a tournament each year during the annual session of the American Medical Association. The suggestion comes from Los Angeles, where the Medical Bowling League has been formed among members of the Los Angeles County Medical Association. A team of five men from each state is invited to meet this year in Cleveland for the first tournament and to organize the American Medical Bowling Association. Bowlers who may be interested are asked to communicate with Dr. Lewis Wine Bremerman, 1709 West Eighth Street, Los Angeles.

Biologists Propose Pan American Cooperation.—The trustees of *Biological Abstracts* recently approved a plan to make a set of volumes of that publication available at a reduced price to persons, foundations and institutions who may wish

to send such sets to South American institutions, according to an announcement by Dr. Anton J. Carlson, Chicago, president of the Union of American Biological Societies. Writing in *Science*, Dr. Carlson pointed out that there are about one hundred and fifty bona fide research and educational institutions in Latin America which do not subscribe to the abstracts because of lack of funds or inequality in monetary exchange value. Organizations or persons interested in this plan can obtain a list of the institutions from John E. Flynn, Ph.D., Editor in Chief of *Biological Abstracts*, University of Pennsylvania, Philadelphia.

Amory Fund Award.—The American Academy of Arts and Sciences announces the first award of the septennial prize of the Amory Fund to four scientists for their contributions to the treatment and cure of diseases of the genitourinary system. The recipients are Dr. Joseph F. McCarthy, professor of urology, New York Polyclinic Medical School and Hospital, New York; Carl R. Moore, Ph.D., professor of zoology, University of Chicago; Dr. Hugh H. Young, professor of urology, Johns Hopkins University School of Medicine, Baltimore, and a European scientist whose name is withheld for the present because he lives in a country dominated by Nazi Germany. The prize money, which is the income from a fund established in 1912 by the late Francis Amory of Beverly, Mass., amounts to nearly \$16,000 and will be divided equally among the four scientists, that for the European recipient being held in trust for him in this country. The award covers contributions made since 1933. Dr. McCarthy was honored for his development of technical instrumental procedures for the examination, diagnosis and treatment by way of the urethra, without external incision, of certain diseases of the bladder, prostate and related organs. Dr. Moore's investigations concerned the physiology of the male reproductive tract, especially as it is influenced by the hormonal secretions of the male sex gland. Dr. Young was cited for the operation of total prostatectomy by the perineal approach, which he devised and perfected for the relief of obstruction to the outlet of the urinary bladder caused by cancer of the prostate gland.

Surgical Supply Firms Indicted.—A federal grand jury sitting in Philadelphia returned an indictment, February 17, charging the American Surgical Trade Association, twelve of its officers and agents and twenty-four corporations in the surgical supply industry, members of the association, with violations of sections 1 and 2 of the Sherman Act. The indictment charges that the defendants, through membership in the American Surgical Trade Association, control the sale of approximately 95 per cent of all surgical supplies and have conspired to limit and prevent the production and sale of articles of surgical supplies which were imitations or copies of other articles. It is alleged that this result has been accomplished by a registration plan under which any member of the association could register any article of surgical supplies which was first produced by the member; by an agreement that no member would produce or sell for five years any article that was an imitation or copy of any article registered with the association, and by a threat to boycott all articles that were imitations or copies of those registered with the association. The indictment also charges that this plan gives to each member who has registered an article a monopoly of five years in the production and sale of that article. The indictment alleges that the effects of the combination and conspiracy have been to restrain substantially and unreasonably the production and sale of articles of surgical supplies which were imitations or copies of articles registered with the association, to prevent normal competition and to give to each member who has registered an article a five year monopoly, thereby giving members the power to control the supply and price of the registered articles. The defendants, each of whom is named in both counts of the indictment, are the American Surgical Trade Association, W. D. Allison Company, A. S. Aloe Company, American Metal Furniture Company, Bard-Parker Company, Randall Faichney Corporation, Gomco Surgical Manufacturing Corporation, W. A. Baum Company, Inc., Clay-Adams Company, Inc., Glasco Products Company, Hamilton Manufacturing Company, Fred Haslam and Company, Inc., Jetter and Scheerer Products, Inc., Kny-Scheerer Corporation, E. B. Meyrowitz Surgical Instruments Company, National Electric Instrument Company, Inc., George P. Pilling & Son Company, Prometheus Electric Corporation, Scanlan Morris Company, J. Sklar Manufacturing Company, Storz Instrument Company, Edward Weck & Company, Zimmer Manufacturing Company and the following individuals: H. N. Bowman, Henry E. Reeves, William D. West, Fred B. Hovey, Oscar F. Cochrane, James Brown, David L. McKean, William H. Toohler, George W. Wallerich, William Herzog, Joseph A. Miner and Edward W. Roehm.

Foreign Letters

AUSTRALIA

(From Our Regular Correspondent)

Dec. 6, 1940.

Limitation of Medical Students

The question of limiting the number of students admitted to the faculty of medicine has been discussed in many parts of the world during recent years for various reasons. In New Zealand, however, the problem is an immediate and a practical one. The number of students wishing to study medicine this year is almost double that which the Otago school (the only one in the dominion) can accommodate. The question is serious, since it involves the refusal to some people who desire it of the opportunity to be trained as doctors. It is no function of a medical school to decide how many it is to turn out: some schools indeed train mainly for export; but, since funds and accommodation were limited, it was surely the duty of those responsible for the design and development of the Otago school, which had no such ambitions, to form an estimate of the number of doctors the country was likely to require in the visible future and build accordingly. It was thought that an annual list of sixty qualified men per annum would satisfy all requirements. If the population is a million and a half it should be adequately served by fifteen hundred doctors: if twenty-five years is an average period of practice—a low estimate—an output of sixty per annum will maintain that number. The medical school then was constructed to accommodate sixty students in a year, but it now is receiving over one hundred, with considerable inconvenience. To extend accommodation would cost a great deal of money, a proposal to which the government is entirely averse. It is possible, moreover, that the present increase in enrolments has only temporary causes. In the first place there is the war, and many parents with adolescent sons, often only one, are anxious to put them into a reserved occupation where they may avoid the war altogether and which will enable them to serve, if need be, with the advantages of commissioned officers and in a non-combatant branch. In the second place there is the social security act. This does not establish a state medical service, but in the eyes of the public it establishes something like it. And the civil service in New Zealand is popular with the public. It is not likely that a state medical service will require a large permanent increase in the profession, and the falling birth rate combined with war casualties must surely point to a reduced rather than an increased need for future doctors. It seems then that a second school is not necessary, and limitation of students at Otago is therefore inevitable. A previous attempt to limit the influx of students in 1930 was not found satisfactory.

Proposed Fortification of White Flour with Synthetic Thiamine

Following the decision of the Ministry of Health in Great Britain that all white flour shall be fortified nutritionally by the addition of synthetic vitamin B₁, it was suggested that the Australian people might benefit by a similar means. The Nutrition Committee of the National Health and Medical Research Council considered the proposal fully but decided that the addition of synthetic vitamin B₁ alone to white flour involves a wrong principle. It is well known that there are many instances in which mixtures occurring in natural products have a more beneficial effect than the administration of the isolated single substances, e. g. in the treatment of pellagra, in which it has been found that, whereas the primary deficiency is of nicotinic acid, the best results are obtained by the administration of additional members of the vitamin B complex. There is no evidence that thiamine produces its

complete nutritional effect by its own unaided physiologic action or that it is any more deficient in the diet of the general Australian community than any other members of the B complex and other substances necessary for normal nutrition. Instead it is recommended strongly that an investigation be made into the possible use as additions to the diet of Australian products such as cereal by-products, dried skim milk and other sources of the B complex rather than the use of imported synthetic products, since such by-products would supply other known essentials besides vitamin B₁. It is also recommended that, since investigations at the Institute of Anatomy, Canberra, have indicated that the B content of Australian wheats is higher than that of wheats examined in England, and, further, since different varieties of Australian wheats show differences in content, that the vitamin B₁ content of the chief varieties of Australian wheats and wheat products be determined without delay. The council has allotted a grant for the work. The investigation will cover all those aspects of the reinforcement of vitamin B complex of flour for bread making which are necessary to insure the production of bread which is nutritionally adequate, of good baking and keeping qualities and acceptable to the public taste.

Epidemiology of Q Fever

Further investigations into the epidemiology of Q fever have yielded interesting facts. The testing of serums for agglutination with an emulsion of *Rickettsia burneti* has provided a useful means not only of diagnosing human illness but also of determining the incidence of infection in various human and animal populations. Agglutinins may be detected in human serums for some months after an obvious attack of Q fever, and they may also be found in cases in which infection has not been apparent.

Out of a total of 180 bandicoot (*Isodon torosus*) serums examined, 39 were found to agglutinate. This evidence of a high incidence of Q fever among bandicoots confirms the important role that this animal plays in the spread of the disease. The incidence of agglutination was much greater in bandicoots captured at Cowan Cowan on Moreton Island than in those captured on the mainland, a fact correlated with their high infestation with the tick *Haemaphysalis humerosa*. Out of a series of cattle serums tested, one was completely positive at a 1:10 dilution. The owner of this cow had had Q fever himself six months previously.

Surveys of human serums were made with serum from abattoir workers in Brisbane and of forestry workers at Imbil. The abattoir was chosen because most of the cases of Q fever have come from there. Of the serums from 79 volunteers, 18 showed agglutination. Four of these workers were known to have had Q fever; 8 had had a previous febrile illness, not investigated at the time, which may have been Q fever; 6 were not aware of having had any fever. Thus infection with *R. burneti* may take a symptomless or inapparent course.

Most Q fever patients have had contact with cattle or pigs, and it seems likely that the cattle in some way convey the infection to dairy or abattoir workers from the bush, particularly from scrub (rain forest) areas. To investigate the possibility of workers in the scrub contracting Q fever without intermediate cattle contact, the forestry workers at Imbil were examined. (Three of 36 rural cases of Q fever have been among timber workers.) Of 64 serums tested, 6 showed the presence of agglutinins for *R. burneti*. Two of the 6 men gave no history of fever, confirming the existence of human Q infection in an inapparent form. Also an examination was made of the blood of 186 militia men stationed temporarily at Cowan Cowan. Failure to find any agglutination in the serums tested suggests that *H. humerosa* does not readily attack men—at least where its natural host is available—and consequently is not likely to be a common cause of direct human infection.

Praise for American Medicine

High praise for the hospitality and clinical opportunities freely given for postgraduate work to visitors in America is given by Dr. Kate Mackay, who recently returned to Australia after a postgraduate tour. As well as the clinics, which serve as a model to the rest of the world, and the well equipped research laboratories, Dr. Mackay was impressed by the knowledge which all Americans have of their own case histories. They are not introspective, she says, but well trained in general medical knowledge. This she attributes largely to the number of popular scientific articles which appear regularly in papers written with the approval of medical men and to public lectures given by well known members of the medical profession. Australian graduates generally are fully appreciative of the hospitality and opportunities for acquiring knowledge afforded to medical graduates visiting America.

The Control of Unscientific Advertising

A subcommittee on unscientific advertising was set up by the New South Wales committee of the Australian Association of Scientific Workers with the object of discouraging the use of statements contrary to, or unsupported by, scientific facts in advertising matter broadcast or published in this state. The subcommittee decided in the first instance to attempt to gage the attitude of the newspapers and the radio stations toward its proposed activities and also to seek the cooperation of the British Medical Association and the Pharmaceutical Association of New South Wales, since much of the objectionable advertising matter is concerned with "patent medicines" and other medical goods. Accordingly, the aforementioned bodies were circularized with the following results:

1. The British Medical Association promised its cooperation.
2. The Pharmaceutical Association sent a guarded reply requesting more information.

3. *Sydney Morning Herald*, Associated Newspapers, Ltd. (the *Sun*), Consolidated Press, Ltd. (the *Telegraph*) and the *Bulletin* indicated general approval of the aims of the subcommittee. *Truth*, Ltd. and *Smith's Weekly* did not reply. In one reply it was suggested that the Australian Association of National Advertisers should be informed of the subcommittee's activities.

4. The commercial radio stations indicated that negotiations with the radio industry would best be carried out through the Australian Federation of Commercial Broadcasting Stations.

Further correspondence was therefore undertaken with the two bodies mentioned. The Secretary of the Australian Federation of Commercial Broadcasting Stations, in reply, stated that the matter would be put before the federation at its next meeting in November. Enclosed in the reply was a brochure, "Standards of Advertising Practice Adopted by the Commercial Radio Advertising Board." The following rules may be quoted from this brochure:

RULE 1.—Medical Advertisements: No advertising shall contain any matter which in any way departs from the truth as to the character of the product or its suitability for the purposes for which it is recommended. Further, no untruthful implications may be imported into any advertising matter.

RULE 12.—In addition to the foregoing conditions in respect of medical advertisements, commercial stations are bound not to accept any script, continuity, advertising copy, recorded commercial announcements and such matter for broadcast which introduces or incorporates:

- (a) False or questionable statements or any other forms of misrepresentation.
- (i) Statements or claims, known or believed to be false, deceptive or grossly exaggerated.

It will be seen that these rules provide an adequate mechanism for the elimination of unscientific statements from radio advertising; but the Commercial Radio Advertising Board, as constituted at present, apparently contains nobody competent to judge the truth of a statement couched in scientific terms.

The subcommittee of the Australian Association of Scientific Workers expressed the opinion that definite proposals should be put before the federation at its November meeting. Two courses of action are suggested:

1. The A. A. S. W. might point out to the federation those statements to which it objects and leave to the latter body any further action according to the rules that have been quoted.

2. Or, adopting a more positive policy, the A. A. S. W. might set up a body analogous to the American Medical Association's Council on Foods and Nutrition. Such a body would report on all advertising matter submitted to it or already incorporated in radio programs. Advertisers would then be permitted to use, in connection with broadcast advertising, a statement signifying that the matter had received the approval of the A. A. S. W. and, in conjunction with the printed advertising, suitable insignia also indicating the approval of the A. A. S. W.

The reply received from the Australian Association of National Advertisers expressed a desire to know more of the aims and objects of the subcommittee and included an invitation for three delegates from the Australian Association of Scientific Workers to meet the executive committee of the Australian Association of National Advertisers on a date to be arranged.

First Queensland Medical Students Graduate

The first of the students to graduate from the newly established Medical School of the University of Queensland will receive their degrees next week. Twenty students now have passed their final examination and are qualified to take up medical positions—positions in which they are urgently needed, as the calling up of medical men for military duties has resulted in a shortage of practitioners available for civilian duties. These graduates are well equipped to enter the profession. In the new medical school an attempt has been made to give expression to ideals which have for some time appealed to the teachers in older schools. The opportunity has been taken not only to bridge the gap between the medical sciences and clinical practice, to establish the closest link between the teaching of physiology and the problems of the general practitioner, but also to establish from the beginning of the subject a policy of progressive and coordinated transition. The incoming student armed with a knowledge of fundamental physical, chemical and biologic conceptions is first led to apply these to cellular behavior. He then proceeds to study groups of cells working together as organs, organs coordinated as systems and systems integrated into an intact organism. Finally, he discovers how this integrated being reacts to the vicissitudes of normal and abnormal environments. Also these students have been required to take an extensive course in social and tropical medicine in order that they may be equipped to deal adequately with Queensland's special problems relating to its tropical climate.

Wartime Supply of Medical Equipment

The possibility of a serious shortage in Australia of stocks of those items of medical equipment which could not be manufactured here was foreseen by Major General Downes, who, in collaboration with the Commonwealth Department of Health, obtained approval for the expenditure in January 1939 of £73,000 for the purchase of certain drugs and instruments which were to be held in reserve for emergency. The drugs included the more important alkaloids, local anesthetics, various antiseptics, arsenical preparations, sulfanilamides, sedatives, calomel, salyrgan, metrazol and nikethamide. The instruments were of types which could not be manufactured locally, such as thermometers, suture needles and syringes. Now, with the notable exception of hypodermic syringes, all the items in the list have been supplied and constitute a valuable reserve today.

Another prewar action was to constitute a medical equipment subcommittee of the Central Committee for the Coordination of Medical Services in Time of War. This subcommittee was given the task of investigating every problem relating to the supply of medical equipment and reporting to the central committee. Since the outbreak of the war, however, it has been given executive authority as an independent medical equipment control committee. This body is composed of a chairman, who must be a medical officer of the defense force, and one representative of each of the Commonwealth Department of Health, the Department of Supply and Development and the Department of Trade and Customs, and the British Medical Association. For the purpose of insuring an adequate supply of medical equipment for the navy, army and air force and the civil population of Australia, this committee may make orders to regulate, restrict or prohibit the production, storage, distribution, sale, purchase and use of medical equipment. Already it has exercised its powers considerably, and with the cooperation of doctors and pharmacists, whom it urges to "improvise and economize," Australia should not suffer any serious shortage.

Hospitality for Doctors' Children

In view of the war in Great Britain, Australian doctors have offered to take into their homes up to five hundred British children under 16 either unaccompanied or accompanied by their mothers. Selection is being undertaken by the British Medical Association. Parents will be responsible for the passage money, and individual arrangements will be made about the cost of education and maintenance. This is essentially a private scheme to place doctors' children in doctors' homes and is quite separate from the official evacuee scheme. The British Medical Association will arrange for transportation, and it will also act as a medium for obtaining the passports.

Fatal Case of Quinine Poisoning

It is well known that toxic effects may result from overdoses of quinine, but the fact that they may prove fatal, especially to children, is perhaps not so generally recognized. A case was recently reported in New Zealand. A child aged 1 year and 8 months accidentally gained possession of a bottle of quinine tablets belonging to his mother. When the woman noticed the fact and also that he must have swallowed several she immediately fed him with strong salt solution and olive oil. This would not make the child vomit, however, and he was taken to a doctor. After examining the boy, the doctor pronounced him all right and told the mother to take him home and give him another emetic. While this was being prepared, the child's lips turned blue, his body became limp and he died at once (less than two hours after the accident was discovered). Postmortem examination showed that he was a well nourished child free from evidence of organic disease. In the stomach was a fairly bulky dry meal of potatoes and vegetables but no pills or tablets. In the first 3 or 4 feet of intestine, 10 pills were found in various stages of disintegration, together with a few fragments of the meal in the stomach. It is interesting to notice that these pills passed through the full stomach to the intestine, so that emesis or even gastric lavage would have been of no avail. An analysis of some of the original tablets showed that they contained between 5 and 6 grains (0.35 Gm.) each of quinine bisulfate. No alkaloid other than quinine was detected in any of the analyses. The rapidity with which the quinine was absorbed from the small intestine is commented on. From the remains of 8 tablets (40 grains, or 2.6 Gm.) only 4 grains (0.26 Gm.) could be recovered on analysis. This is in accord with the idea that quinine is stored for only a short time in the various organs before being destroyed. The child may even have swallowed more than 40 grains.

BUCHAREST

(From Our Regular Correspondent)

Oct. 28, 1940.

Bachelor Tax in Bulgaria

The Bulgarian chamber of deputies passed a bill according to which the bachelor tax will be raised by 20 per cent. Exception will be made with men who were advised by the so-called marriage consulting bureaus not to marry. The property of bachelors is inherited by the state. Illegitimate children of bachelor fathers inherit a certain percentage of the property if paternity has been recognized by the bachelor. Unmarried persons older than 25 years cannot occupy any government position.

The Public Health Balance of the Past Year

In 1939 one hundred public health districts were established and the organization of the public health affairs of the capital city, Bucharest, were arranged according to the model supplied by the Rockefeller Foundation. In ten counties public health model districts have been established. Besides the sums computed in the budget for drugs, 60,000,000 lei was spent, especially for the campaign against malaria and syphilis. For prophylactic work in villages besides the twenty-five bath trains already extant, ten new trains have been installed. Twenty portable bacteriologic laboratories, twenty-four portable roentgen ray laboratories, one hundred and thirty-two microscopes, three hundred and twenty delousing ovens and twenty-five steam disinfectors have been purchased. For the nursing of patients seven hundred oxygen outfits, one thousand four hundred oxygen cylinders and six hundred pumps filled with oxygen have been put in operation. New hospital pavilions were erected at nine small cities. A sanatorium for tuberculosis patients has been erected at Valea Jasului, a special hospital for pellagra patients in Pitesti, and one for leprosy patients in Tichilesti-Tulcea. In Bucharest a cancer center has been built. Sixty-three dispensaries have been established with baths. Ten model dispensaries are in the course of construction. Twenty million lei has been distributed among the provinces for making safe wells in villages. For the study of the nutrition of the peasantry fifty-six woman inspectors did exploratory work in four counties, namely, Arges, Turda, Romanati and Lapusna. In the villages anti-scarlet fever inoculations have been introduced and 900,000 children inoculated; 1,267,678 diphtheria antitoxin vaccinations have been given; thirty-seven antirabic centers were established in different parts of the country. At present plans are being made for the construction of ten hospitals for venereal diseases and four hospitals for the treatment of patients suffering from tuberculosis. Seven hundred and thirty puericultural dispensaries have been established, where during one year 126,971 sick children have been examined. The children were visited also at their homes in 460,035 instances. The ministry of public health has distributed an immense quantity of underwear and clothing.

Marriages

CONRAD KEISTER CLIPPINGER, Dayton, Ohio, to Miss Norma Eileen Schuesselin of Piqua in November 1940.

BUFORD SOUTER CHAPPELL to Miss Mary Marjorie Cooper, both of Columbia, S. C., in November 1940.

HENRY CLAY DORRIS to Miss Betty S. Aycock, both of Atlanta, Ga., in November 1940.

WILLIAM H. HYDEN, Auxier, Ky., to Miss Bess Long Ardery of Paris in November 1940.

ALBERT R. ANDRISEK to Miss Lillian Sindelar, both of Cleveland, in November 1940.

PAUL J. DWAIHY, Detroit, to Miss Rae Nader at Cleveland in November 1940.

Deaths

Frank James Kinberger, New Orleans; Tulane University School of Medicine, New Orleans, 1908; member of the Louisiana State Medical Society; clinical assistant in diseases of children from 1912 to 1914, lecturer and instructor in diseases of children from 1914 to 1923 and assistant professor of clinical pediatrics at his alma mater from 1923 to 1940; first secretary of the Louisiana State Pediatric Society; pediatrician with the city board of health; delegate from New Orleans to the White House Conference on Child Health and Protection called by President Hoover in 1930; on the staffs of the Touro Infirmary and the Mercy Hospital, Baptist Hospital and the Charity Hospital; aged 53; died, Dec. 5, 1940, of cardiovascular disease and uremia.

Charles Bryant Cooper, Honolulu, Hawaii; Missouri Medical College, St. Louis, 1889; member of the Hawaii Territorial Medical Association; formerly police and prison physician for the Hawaiian government; joined the National Guard of the territory and served as surgeon general from 1903 to 1917; during the World War, entered the federal service in February 1918, serving in an advisory capacity with the territorial government at Honolulu and of the examining board; was discharged as a lieutenant colonel in December 1918; was later commissioned a colonel of the medical reserve; was chief surgeon of the Hawaiian Railroad; aged 76; died, Nov. 9, 1940, at his home at Aiea.

Kate Campbell Hurd Mead ♂ Haddam, Conn.; Woman's Medical College of Pennsylvania, Philadelphia, 1888; consulting gynecologist, Middlesex Hospital, Middletown, from 1907 to 1925; past president of the Public Health Association of Haddam; past president of the Middlesex County Medical Society; corresponding secretary of the Medical Women's International Association; past president of the American Medical Women's Association; author of "Medical Women of America" and "History of Women in Medicine"; aged 73; died, January 1.

Carl Lewis Wheeler, Lexington, Ky.; Hospital College of Medicine, Louisville, 1897; member of the House of Delegates of the American Medical Association in 1913, from 1916 to 1919 and in 1922; member of the Kentucky State Medical Association and the American Urological Association; fellow of the American College of Surgeons; past president of the Fayette County Medical Society; at one time health officer; aged 67; on the staffs of St. Joseph's Hospital and the Good Samaritan Hospital, where he died, Dec. 15, 1940.

Isaac Arnold Withers, Fort Worth, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1898; member of the State Medical Association of Texas; past president of the Tarrant County Medical Society; past president of the state board of medical examiners; veteran of the Spanish-American and World wars; on the staff of the All Saints Episcopal Hospital and the City and County Hospital; aged 65; died, Dec. 1, 1940, of carcinoma of the lungs.

Harry Beecher McCorkle, Santa Rosa, Calif.; Marion-Sims College of Medicine, St. Louis, 1898; member of the Colorado State Medical Society; fellow of the American College of Physicians; at one time mayor of Billings, Okla.; formerly on the staffs of the Beth El and Glockner hospitals, Colorado Springs, Colo.; aged 70; died, Dec. 25, 1940, in the General Hospital of bronchopneumonia and influenza.

George William Pressly, Verdery, S. C.; Jefferson Medical College of Philadelphia, 1892; member of the Medical Society of the State of North Carolina; secretary of the state board of medical examiners from 1902 to 1906; fellow of the American College of Surgeons; aged 70; died, Dec. 17, 1940, in the Veterans Administration Facility, Augusta, Ga., of bronchopneumonia and pulmonary tuberculosis.

Edward Nelson McKee ♂ Los Angeles; College of Physicians and Surgeons, Keokuk, Iowa, 1895; member of the Radiological Society of North America; for many years on the staff of the Methodist Hospital; served during the World War; aged 72; died, Dec. 22, 1940, in the Glendale (Calif.) Sanitarium and Hospital of aplastic anemia due to roentgen rays.

George Hanting Rockwell, Syracuse, N. Y.; Syracuse University College of Medicine, 1901; member of the Medical Society of the State of New York; formerly assistant professor of otolaryngology at his alma mater; on the staff of the Syracuse Memorial Hospital; aged 62; died, Dec. 30, 1940, of carcinoma of the bladder and coronary thrombosis.

Henry Carl Prill, Cleveland; Ohio State University College of Homeopathic Medicine, Columbus, 1915; member of the Ohio State Medical Association; fellow of the American College of Surgeons; on the staff of the Huron Road Hospital; aged 48; was found dead, Dec. 3, 1940.

Paul Hamilton Phillips, Ashdown, Ark.; Tulane University of Louisiana School of Medicine, New Orleans, 1904; member of the Arkansas Medical Society; president of the Little River County Medical Society; aged 59; died, Dec. 30, 1940, in a hospital at Texarkana.

Harry Ernschaw Gettier ♂ Littlestown, Pa.; Baltimore Medical College, 1897; past president of the Adams County Medical Society; veteran of the Spanish-American War; aged 70; on the staff of the Annie M. Warner Hospital, Gettysburg, where he died, Dec. 26, 1940, of prostatic obstruction and chronic myocarditis.

Joseph Gregory Elias Page, Southbridge, Mass.; School of Medicine and Surgery of Montreal, Que., Canada, 1895; member of the Massachusetts Medical Society; formerly member of the board of health, member of the school committee and bank president; aged 69; died, Dec. 28, 1940, of coronary thrombosis.

David E. Shields, Morristown, Tenn.; Vanderbilt University School of Medicine, Nashville, 1883; University of Nashville (Tenn.) Medical Department, 1884; member of the Tennessee State Medical Association; past president of the Hamblen County Medical Society; aged 82; died, Dec. 22, 1940, of pneumonia.

Sterling Price Bond ♂ Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1912; fellow of the American College of Surgeons; on the staffs of the Children's Hospital, St. Vincent's Infirmary and the Pulaski County Hospital; aged 51; died, Dec. 5, 1940, of hypertensive heart disease.

Robert Hector, Berkeley, Calif.; University of California Medical Department, San Francisco, 1904; was acting health officer of Berkeley from 1913 to 1917; aged 65; on the staff of the Berkeley Hospital, where he died, Dec. 12, 1940, of injuries received when gases in the oil furnace in his home exploded.

Thomas Pickens Russell, Center Line, Mich.; University of Alabama School of Medicine, University, 1911; member of the Michigan State Medical Society; past president of the Macomb County Medical Society; aged 67; died, Dec. 24, 1940, in the Grace Hospital, Detroit, of coronary occlusion.

J. C. F. Siegfriedt, Red Lodge, Mont.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; mayor; served during the World War; formerly state senator; aged 61; was found dead, Dec. 10, 1940, of subacute bacterial endocarditis.

Frank Hermann Warncke ♂ Elizabeth, N. J.; University and Bellevue Hospital Medical College, New York, 1904; aged 59; on the staff of the Alexian Brothers Hospital, St. Elizabeth Hospital and Elizabeth General Hospital, where he died, Dec. 26, 1940, of aortic aneurysm.

Vernon Offutt Heddens ♂ Pasadena, Calif.; Johns Hopkins University School of Medicine, Baltimore, 1915; served during the World War; on the staff of the Huntington Memorial Hospital; aged 52; died, Dec. 11, 1940, of bronchopneumonia and coronary thrombosis.

Albert B. Leigh ♂ Kaukauna, Wis.; University of Illinois College of Medicine, Chicago, 1927; fellow of the American College of Surgeons; aged 39; on the staff of St. Elizabeth Hospital, Appleton, where he died, Dec. 14, 1940, of a streptococcal infection.

Joseph Ansley Gustafson ♂ Orion, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; aged 67; on the staff of the Lutheran Hospital, Moline, where he died, Dec. 24, 1940, of coronary thrombosis.

Howard Lee Metcalf ♂ Springfield, Ill.; Rush Medical College, Chicago, 1904; past president of the Sangamon County Medical Society; on the staffs of St. John's Hospital and the Springfield Hospital; aged 64; died, Dec. 15, 1940, of coronary sclerosis.

George E. Parker, Benson, N. C.; College of Physicians and Surgeons, Baltimore, 1886; member of the Medical Society of the State of North Carolina; past president of the Johnston County Medical Society; aged 78; died, Dec. 15, 1940, of heart disease.

Manney Murdock Rice, Columbia, S. C.; University of Maryland School of Medicine, Baltimore, 1906; member of the South Carolina Medical Association; formerly member of the city council; aged 60; died, Dec. 25, 1940, of chronic myocarditis.

William Oliver Smith, Altavista, Va.; University College of Medicine, Richmond, 1898; member of the Medical Society of Virginia; aged 71; died, Dec. 17, 1940, in the Virginia Baptist Hospital, Lynchburg, of gastric hemorrhage and arteriosclerosis.

Thomas Lamar Harris, Wrightsville, Ga.; University of Georgia Medical Department, Augusta, 1881; for many years justice of the peace; formerly mayor; also a lawyer; aged 78; died, Dec. 12, 1940, in a hospital at Sandersville.

William Rudolph Wegert, Unionville, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1899; Saginaw Valley Medical College, Saginaw, Mich., 1901; aged 82; died, Dec. 21, 1940, of chronic myocarditis.

Ola Adolphus Kibler, Chicago; St. Louis College of Physicians and Surgeons, 1906; member of the Illinois State Medical Society; for many years on the staff of the Chicago State Hospital; aged 59; died, Dec. 15, 1940.

Edgar A. McCombs, Connellsville, Pa.; University of Louisville (Ky.) Medical Department, 1907; member of the Medical Society of the State of Pennsylvania; aged 58; died, Dec. 17, 1940, in the Connellsville State Hospital.

Charles Dean Laidlaw, Canton, N. Y.; Syracuse University College of Medicine, 1902; member of the Medical Society of the State of New York; on the staff of the Potsdam (N. Y.) Hospital; aged 62; died, Dec. 13, 1940.

Lawrence Henry Fitzgerald, Temple, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1917; served during the World War; aged 45; died, Dec. 31, 1940, in a hospital at Reading of multiple myeloma.

Hildegard Gertrude Henderson, San Francisco; University of California Medical School, San Francisco, 1928; for many years on the staff of the Children's Hospital; aged 50; died, Dec. 3, 1940, of cerebral hemorrhage.

Asa Witter Montgomery, Stella, Neb.; Rush Medical College, Chicago, 1896; past president of the Richardson County Medical Society; formerly mayor; aged 68; died, Dec. 3, 1940, in St. Catherine's Hospital, Omaha.

Lyman Averill Cheney, Washington, D. C.; University of the City of New York Medical Department, 1882; aged 79; died, Dec. 28, 1940, in the Garfield Hospital of carcinoma of the prostate and retroperitoneal glands.

John Frederick Simpson, Brooklyn; Bellevue Hospital Medical College, New York, 1895; member of the Medical Society of the State of New York; aged 74; died, Dec. 31, 1940, in the Wyckoff Heights Hospital.

Yearslaf J. Fencil, Casco, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1912; for many years member of the school board; aged 57; died, Dec. 26, 1940, in Green Bay of angina pectoris.

Percy James Sandys Bird, Weyburn, Sask., Canada; University of Dublin School of Physic, Trinity College, Dublin, Ireland, 1900; member of the American Psychiatric Association; aged 63; died, Nov. 18, 1940.

Orlando Velpau Langley, Loachapoka, Ala.; Baltimore Medical College, 1893; served during the World War; for many years associated with the Veterans Bureau, New Orleans; aged 69; died, Dec. 29, 1940.

Mansfield Goldberg Levy, Buffalo; University of Buffalo School of Medicine, 1911; on the staffs of the Children's Hospital and the Memorial Hospital; aged 54; died, Dec. 31, 1940, of coronary thrombosis.

Wilson Harmon Button, Hubbard, Ohio; Western Reserve University Medical Department, Cleveland, 1885; formerly member of the board of education; aged 82; died, Dec. 12, 1940, of coronary thrombosis.

Frederick Horace Williams, Boston; University of the South Medical Department, Sevanee, Tenn., 1901; on the staffs of the Brooks and Trumbull hospitals, Brookline; aged 67; died, Dec. 6, 1940.

Frank Lincoln Kenney, St. John, N. B., Canada; McGill University Faculty of Medicine, Montreal, 1888; for many years on the staff of St. John General Hospital; aged 76; died, Dec. 3, 1940.

Van William Burns, Stuart, Fla.; University of Arkansas School of Medicine, Little Rock, 1932; on the staff of the Martin County Hospital; aged 38; died, Dec. 23, 1940, of malignant hypertension.

Siegfried A. Van Hoefen, St. Louis; St. Louis College of Physicians and Surgeons, 1902; aged 63; on the staff of the Evangelical Deaconess Hospital; died, Dec. 16, 1940, of mesenteric thrombosis.

Carl Clifford Bickley, Waterloo, Iowa; Hahnemann Medical College and Hospital, Chicago, 1906; member of the Iowa State Medical Society; aged 58; died, Dec. 18, 1940, of coronary thrombosis.

Ernest Leslie Huse, Meriden, N. H.; Dartmouth Medical School, Hanover, 1907; past president of the Sullivan County Medical Society; aged 60; died, Dec. 21, 1940, of coronary thrombosis.

John Luke Murphy, Eastport, Maine; Medical School of Maine, Portland, 1909; past president of the Washington County Medical Society; aged 55; died, Nov. 7, 1940, of coronary thrombosis.

Jacob M. Bonnette, Alexandria, La.; Memphis (Tenn.) Hospital Medical College, 1907; aged 61; died, Dec. 5, 1940, in the Baptist Hospital of carcinoma of the right lung with metastases.

Bertha Ladd Hoskins, Atlanta, Ga.; Boston University School of Medicine, 1896; aged 78; died, Dec. 13, 1940, in the Crawford W. Long Hospital of heart disease and bronchopneumonia.

Joseph Buford Boyer, Wilsonville, Ala.; Louisville (Ky.) Medical College, 1892; member of the Medical Association of the State of Alabama; aged 81; died, Dec. 15, 1940, of carcinoma.

Nicholas Young Bradford MacKenzie, Andover, N. H.; Dartmouth Medical School, Hanover, 1901; member of the New Hampshire Medical Society; aged 64; died, Nov. 27, 1940, in Franklin.

William H. Jones, Ashland, Kan.; Tennessee Medical College, Knoxville, 1900; member of the Kansas Medical Society; aged 63; died, Nov. 7, 1940, of coronary thrombosis and chronic nephritis.

James Otis Matthis, Salem, Ore.; Memphis (Tenn.) Hospital Medical College, 1909; served during the World War; aged 55; was found dead, Dec. 5, 1940, of a bullet wound self inflicted.

Cora Luarky Stitt, Stockbridge, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1894; aged 70; died, Dec. 21, 1940, in the Sparrow Memorial Hospital, Lansing.

Snethen Burroughs Duggan, Murfreesboro, Tenn.; University of Tennessee Medical Department, Nashville, 1903; aged 59; died, Dec. 26, 1940, in the Veterans Administration Facility.

Benjamin Richard Lokke, Marenisco, Mich.; Rush Medical College, Chicago, 1922; aged 49; was killed, Dec. 30, 1940, when the automobile in which he was driving was struck by a truck.

M. Vernon Snyder, Chicago; Chicago College of Medicine and Surgery, 1912; member of the Illinois State Medical Society; aged 53; died, January 1, at Evanston, Ill., of coronary thrombosis.

Mark Anthony McGovern, Boston; Kansas City College of Medicine and Surgery, Kansas City, Mo., 1923; College of Physicians and Surgeons, Boston, 1927; aged 48; died, Nov. 12, 1940.

Lewis Rutherford Murray, Sussex, N. B., Canada; Jefferson Medical College of Philadelphia, 1892; served during the World War; at one time mayor; aged 70; died, Dec. 24, 1940.

Frank Browne Easley, Chattanooga, Tenn.; Harvard Medical School, Boston, 1927; member of the Tennessee State Medical Association; aged 39; was shot and killed, Dec. 29, 1940.

Harold G. Craig, Davidson, Sask., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1906; served during the World War; aged 60; died, Dec. 4, 1940, in Vancouver, B. C.

Charles Christian Dreyer, Toledo, Ohio; University of Wooster Medical Department, Cleveland, 1896; member of the Ohio State Medical Association; aged 70; died, Dec. 17, 1940.

Henry Wiedow, Twentynine Palms, Calif.; State University of Iowa College of Medicine, Iowa City, 1902; member of the California Medical Association; aged 68; died, Dec. 18, 1940.

Alex F. Williams, Cornerville, Ark. (licensed in Arkansas in 1903); member of the Arkansas Medical Society; aged 62; died, Dec. 30, 1940, at Eupora, Miss., of coronary occlusion.

Reuben C. Brophy, Elgin, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1895; also a dentist; aged 85; died, Dec. 22, 1940, of an injury to the left leg and anemia.

G. M. Phelps, Kankakee, Ill.; College of Physicians and Surgeons of Chicago, 1885; aged 82; died, Dec. 27, 1940, in the Cottage Hospital, West Plains, Mo., of coronary sclerosis.

Morris Winheld ☉ Philadelphia; Baltimore Medical College, 1904; an Affiliate Fellow of the American Medical Association; aged 67; died, Dec. 23, 1940, in the Mount Sinai Hospital.

Edmund Eugene Robinson, Kannapolis, N. C.; Medical College of Virginia, Richmond, 1927; aged 38; was found dead, Dec. 27, 1940, as the result of a blow on the head.

Marmaduke Atkinson, Amelia C. H., Va.; Medical College of Virginia, Richmond, 1901; served during the World War; aged 60; died, Dec. 2, 1940, of chronic myocarditis.

Frederick Arthur Van Buren, Tucson, Ariz.; Northwestern University Medical School, Chicago, 1904; served during the World War; aged 64; died, Nov. 26, 1940.

Thomas Fitzgerald McNamara ☉ Rochester, N. Y.; University of Buffalo School of Medicine, 1902; aged 73; died, Dec. 25, 1940, of bronchopneumonia and myocarditis.

William Algernon Lavender, Birmingham, Ala.; Birmingham Medical College, 1909; member of the Medical Association of the State of Alabama; aged 67; died, Dec. 2, 1940.

Harry Francis Cleverly, Scituate, Mass.; Boston University School of Medicine, 1906; served during the World War; aged 62; died, Dec. 19, 1940, of coronary sclerosis.

James Herbert Briley, Springdale, Ark.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; aged 66; died, Dec. 26, 1940, of myocarditis.

Jefferson Monroe May, Hayesville, N. C.; Southern College of Medicine and Surgery, Atlanta, Ga., 1914; aged 49; died, Dec. 18, 1940, in a hospital at Marietta, Ga.

William E. Chambers, Cleveland; University of Toronto Faculty of Medicine, 1893; aged 72; died, Dec. 20, 1940, of diabetes mellitus and carcinoma of the pancreas.

Walter Robert Best, Scooby, Miss.; University of Virginia Department of Medicine, Charlottesville, 1897; aged 80; died, Dec. 4, 1940, in Greenwood of acute hemiplegia.

John Burr Talmage, Lawrenceburg, Ind.; Cleveland Homeopathic Medical College, 1903; served during the World War; aged 74; died, Dec. 4, 1940, of angina pectoris.

Clarence Elbert Hewitt ☉ Springfield, Mass.; Baltimore Medical College, 1897; aged 78; died, Dec. 18, 1940, in the Springfield Hospital of myelogenous leukemia.

James Clint Sumner, Roanoke, Va.; Medical College of Virginia, Richmond, 1909; aged 74; died, Dec. 4, 1940, in the Shenandoah Hospital of coronary thrombosis.

Edwin Paul Fagan ☉ Portland, Ore.; State University of Iowa College of Medicine, Iowa City, 1928; aged 38; died, Dec. 12, 1940, of a self-inflicted bullet wound.

Thomas Morrison Lawton, Berkley, Mich.; Trinity Medical College, Toronto, Ont., Canada, 1884; L.R.C.P., Edinburgh, Scotland, 1884; aged 84; died, Dec. 19, 1940.

Lewis Wilbur Stidham, Alameda, Calif.; Rush Medical College, Chicago, 1891; aged 77; died, Dec. 9, 1940, of coronary thrombosis and arteriosclerotic heart disease.

James Thomas Breakey, Bonfield, Ill.; Jenner Medical College, Chicago, 1908; Chicago College of Medicine and Surgery, 1910; aged 64; died, Dec. 16, 1940.

Dana A. Sargent, Hopkins, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 86; died, Dec. 17, 1940, of a fracture of the hip received in a fall.

William H. Hord, Maysville, Ky.; University of Louisville Medical Department, 1886; aged 77; died, Dec. 31, 1940, in the Hayswood Hospital of cerebral hemorrhage.

Harry Hansell Preston ☉ Hot Springs National Park, Ark.; Tulane University of Louisiana School of Medicine, New Orleans, 1928; aged 38; died, Dec. 8, 1940.

Huldah Josephine Prioleau, Charleston, S. C.; Howard University College of Medicine, Washington, D. C., 1904; aged 60; died, Dec. 14, 1940, of endocarditis.

Jane Smith Devereaux, Marblehead, Mass.; Boston University School of Medicine, 1880; aged 82; died, Dec. 26, 1940, of cerebral thrombosis and arteriosclerosis.

Norman Perry Mills, Appleton, Wis.; Rush Medical College, Chicago, 1897; member of the State Medical Society of Wisconsin; aged 67; died, Dec. 15, 1940.

Roy Newton Fuller ☉ Tulare, Calif.; Cooper Medical College, San Francisco, 1908; aged 56; died, Dec. 13, 1940, of heart disease and pulmonary tuberculosis.

Martin Jay Hanna, Baltimore; University of the South Medical Department, Swannee, Tenn., 1908; aged 53; died, Dec. 2, 1940, of carcinoma of the larynx.

Bart Wayne Freer, Fort Smith, Ark.; Memphis (Tenn.) Hospital Medical College, 1902; member of the Arkansas Medical Society; aged 70; died, Dec. 29, 1940.

Lenora May Benton Hamly, Denver; Gross Medical College, Denver, 1897; aged 79; died, Nov. 29, 1940, in Port Alberni, B. C., Canada, of coronary thrombosis.

Charles Wendell Garey, Quincy, Mass.; Boston University School of Medicine, 1889; aged 74; died, Nov. 27, 1940, of acute myocarditis and arteriosclerosis.

Mary Mills, San Angelo, Texas; Southwestern Homeopathic Medical College and Hospital, Louisville, Ky., 1896; aged 80; died, Dec. 23, 1940, of angina pectoris.

James D. Milligan, San Jose, Ill.; Marion-Sims College of Medicine, St. Louis, 1898; aged 62; was found dead in bed, Dec. 5, 1940, of cerebral hemorrhage.

Milton Ashby Nelms, Walla Walla, Wash.; Cooper Medical College, San Francisco, 1893; aged 71; died, Dec. 5, 1940, in a local hospital of acute nephritis.

Alice Crawford Brown, Lancaster, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; aged 68; died, Nov. 23, 1940.

Hillel T. Irving, Chicago; Northwestern University Medical School, Chicago, 1913; aged 52; died, Dec. 12, 1940, in Miami Beach, Fla., of cerebral thrombosis.

George Reaves De Poyster, Fort Worth, Texas; University of Tennessee College of Medicine, Memphis, 1929; aged 40; died, Dec. 24, 1940, of tuberculous.

George W. Owings, Owings, S. C.; Atlanta (Ga.) College of Physicians and Surgeons, 1900; for many years bank president; aged 63; died, Dec. 7, 1940.

William Whitney Waterman, San Gabriel, Calif.; Columbia University College of Physicians and Surgeons, New York, 1904; aged 66; died, Dec. 10, 1940.

John D. Boileau, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1887; aged 87; died, Dec. 26, 1940, in the Hahnemann Hospital.

Ulysses B. G. Ewing, Franklin, Ind.; Medical College of Ohio, Cincinnati, 1884; aged 77; died, Dec. 17, 1940, of chronic myocarditis and arteriosclerosis.

William John Osborne, Pittsburgh; American College of Medicine and Surgery, Chicago, 1904; aged 63; died, Dec. 26, 1940, of cerebral hemorrhage.

David Reece Bell, Lynwood, Calif.; University of Nebraska College of Medicine, Homeopathic Department, Lincoln, 1885; aged 84; died, Nov. 14, 1940.

Joseph A. Le Doux, Los Angeles; University of Maryland School of Medicine, Baltimore, 1889; aged 84; died, Dec. 23, 1940, of chronic myocarditis.

Lee Seamster, Mineral Wells, Texas (licensed in Texas, under the Act of 1907); aged 88; died, Dec. 11, 1940, in Fort Worth of chronic nephritis.

Thomas Hepburn Buckler, Baltimore; University of Maryland School of Medicine, Baltimore, 1888; aged 73; died, Dec. 27, 1940, of cerebral sclerosis.

Clarence Armor Chritzman, Mercersburg, Pa.; Jefferson Medical College of Philadelphia, 1892; aged 70; died, Dec. 23, 1940, of bronchopneumonia.

Ernest Mason Foreman, Louisville, Ky.; Louisville Medical College, 1897; aged 65; died, Nov. 19, 1940, of cerebral thrombosis and arteriosclerosis.

Augustus M. Nelson, Spartanburg, S. C.; Southern Medical College, Atlanta, Ga., 1895; aged 69; died, Dec. 31, 1940, of fracture of the femur.

John Howard Heath, Oakland, Calif.; Eclectic Medical Institute, Cincinnati, 1874; aged 89; died, Nov. 10, 1940, of cerebral hemorrhage.

Jesse Mitchell Moore ☉ Cleveland; University of Wooster Medical Department, Cleveland, 1898; aged 71; died, Dec. 28, 1940, of pneumonia.

Samuel Lindsay ☉ Winnsboro, S. C.; Bellevue Hospital Medical College, New York, 1898; aged 67; died, Dec. 29, 1940.

William A. Cromley, Columbus, Ohio; Starling Medical College, Columbus, 1888; aged 84; died, Dec. 3, 1940.

Hugh A. Campbell, Crestview, Tenn. (licensed in Tennessee in 1889); aged 90; died, Dec. 30, 1940, of senility.

Samuel H. Bourland, Arkadelphia, Ark. (licensed in Arkansas in 1903); aged 66; died, Dec. 5, 1940.

Ira Finley Harlan, Los Angeles; Barnes Medical College, St. Louis, 1897; aged 69; died, Nov. 8, 1940.

Bureau of Investigation

DROWN LABORATORIES SUBMERGED IN PSEUDO-SCIENCE

In 1923 THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION exposed the essential fakery of the various devices and principles promoted and propounded by Albert Abrams, A.M., M.D., LL.D., F.R.M.S. [sic], of San Francisco. A number of physicians had leased from him a device called the "Oscilloclast," which incidentally was also leased to osteopaths. Continuously since that time various "Wallingfords" have promoted devices of a similar nature, particularly to chiropractors. The American Medical Association has recounted the story of the Abrams business several times in both THE JOURNAL and Hygeia. The Bureau of Investigation continues to write about one hundred letters each year to inquiring correspondents concerning these various imitations. Recently THE JOURNAL published a Query and Minor Note on the subject of "radionics," now offered as a basis for the promotion of some of these machines; the particular name devised by Abrams for his supposed magic was "electronics."

From an organization known as the Drown Laboratories of Hollywood, Calif., now come letters which, according to the letterhead, indicate that the concern has other offices and a branch known as the Drown Laboratory of Radio Therapy. These communications announced that a course of instruction would begin Jan. 6, 1941, in what is referred to as the Drown School of Radio Therapy. Some of these letters have been addressed to physicians who have passed them on to the American Medical Association. One of these promotional letters sets forth a tear-fetting appeal to the disconsolate medico:

"The people of the general public are fast becoming educated to the fact that there is some way whereby they may have their physical conditions analyzed, diagnosed, and treated from a purely scientific method. They are demanding that method and it behooves every doctor, whatever the school of healing art he has graduated from, to keep up with the times, and supply the need himself and not have to send his patient to some one else and thereby lose that patient's confidence."

There it is, doctor! Surely you are convinced. But perhaps not? Let us then lay it on a little thicker. The document proceeds:

"The Doctor is not always aware of how the patient feels about it, but it leaves the patient thinking 'Well, just where can I turn for this relief?' For this reason and many more you owe it to yourself and patient to learn the Scientific Method of properly analyzing, diagnosing, and treating your case, because if your patient chooses you he wants that secure feeling that his choice can care for him in his time of great need."

And what is "the Scientific Method"? You want to know! But wait, doctor, a little more stimulation!

"The Drown School of Radio Therapy has been opened for the purpose of teaching licensed doctors and physicians the one Known Method at present that will acquaint the doctor with his patient from all angles, and help him keep his patients instead of losing them for lack of equipment, and the complete knowledge to use it."

You see, doctor, it takes time, it takes instruments—it takes money.

"Each course of instruction will last three weeks afternoon and evening. We now have the equipment to give the doctor practical training and he cannot buy our new instruments from us until he passes our examination and shows that he knows enough about the work to handle his cases according to our proven method."

But be not distressed if you fear that this life-saving boon is to escape you for lack of funds:

"In this work as well as any given Therapy the doctor must know what he is attempting to do. It has been

definitely proven to us that no doctor can just take these instruments and use them without enough instruction. We therefore have made arrangements to finance the doctor 100% in the following manner."

The financing is for the full price of the course, which is \$200. But "if the doctor passes his examination," this will be applied to the purchase price of an instrument sold by the Drown Laboratories. The doctor is given a choice of paying \$17.61 a month in place of \$200 cash and, furthermore, of buying the machine without a down payment. The promoters claim, finally: "Your business should never be below \$500.00 per month and can run as high as you desire."

The idea that such devices can be promoted and sold eighteen years after similar agencies were declared to be useless is the concern of various governmental authorities, particularly now when our government is so interested in the health of the nation.

The Drown Laboratories are not new to the files of the Bureau of Investigation. The principal seems to be one Ruth B. Drown, who is a Doctor of Chiropractic and who, at various times, has been connected with the promotion of variously named imitations of the old Abrams device. As THE JOURNAL said in 1923: "The American Medical Association will take up Abrams' fantastic vagaries for serious investigation when the American Astronomical Society appoints a committee to determine the truth or falsity of the theory of Voliva, head of the Zionites, that the earth is flat."

AN EGG, AN ORANGE AND A CARROT— ALSO SOME ALFALFA

A "Health Secret" and a Food Fad Subjects of Post Office Action

Who eats an Egg, Orange & Carrott [sic], all raw, per diem, gets the 16 Chemical Elements it takes to keep a Human alive. Thanx. Come again, soon & stay longer, sez, The Eureka Agency.

Such was the "health secret" sent through the mails by Newell R. LaRue to the credulous who answered his advertisement:

WHY DIE? SPEND 24c & LIVE

16 Chemical Elements, which wear out, keep Humans living; replace 'em, by eating 3 items Grocers sell @ 1c each: I'll name 'em and send you 3 gallons of Concentrate that'll harmlessly clean anything and remove any spot from any fabric; also Pen, writes ink if dipped in water; also \$ Razor Blade Sharpener, guaranteed to never wear out (makes any Blade last 6 months); everything sent postpaid for 24c by

THE EUREKA AGENCY, NEW ORLEANS, LA.

The Post Office Department didn't think much of the secret or the rest of what Eureka offered and issued a fraud order against LaRue and the agency.

No matter what was written to LaRue—the "secret" quoted was all the medical advice that was sent. One inquirer wrote that he had given up hope of regaining his health; another, that he wished to "live on and on"; and a third, that his physician had abandoned all hope for him.

True, the daily consumption of an egg, an orange and a carrot would provide minute quantities of calcium, phosphorus and iron, but in amounts far below the daily requirement of these elements. The fraud order emphasized that deaths seldom occur as a result of mineral deficiencies and that many diseases may progress to the incurable stage even though the patient has consumed ample quantities of both minerals and vitamins. Evidence also was presented to show that no amount of minerals or "chemical elements" (a term used by LaRue) will prevent or cure such serious conditions as cancer, tuberculosis, diabetes, high blood pressure, hookworm, syphilis, malaria and others, some of which, in spite of diagnosis and medical or surgical treatment, result in fatalities. The warning was added that persons who have diseases which might be cured if diagnosed and given prompt medical or surgical treatment but who, instead, substitute the diet advocated by LaRue would in many instances suffer disastrous consequences.

The Post Office memorandum further brought out that LaRue started his business in 1920 and that he claimed that his so-called diet instructions were given him by a physician many years ago, though he submitted no evidence to support his claim. It was shown that he had no medical training and employed no one who possessed it. He claimed that he lived on the diet that he recommended and it was noted that he appeared emaciated and in poor health. The Eureka Agency was declared to be a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and accordingly a fraud order was issued against it on Dec. 1, 1939.

Alfalfa

Tablets which were said to contain alfalfa, kelp, milk, sugar and powdered sugar and represented to be good for overweight, underweight, influenza, colds, fevers, abscesses, constipation and some other conditions were advertised to the public by Al Morrison of San Francisco under the trade style "Al Morrison Health and Beauty Studio," as follows:

GOOD HEALTH IS EVERYTHING

Al Morrison's Alfalfa-Kelp Tablets are a proven success, they supply eleven organic minerals, alkaline substance and the Vitamins A, B, D and G. Modern Health Science has proven that these important Vitamins, alkaline substance and organic minerals are an important aid in building the human body to better health . . .

Al Morrison's Alfalfa-Kelp Tablets supply the following minerals as they are naturally found in Alfalfa or Kelp: Iodine, Iron, Copper, Manganese, Calcium, Phosphorus, Sulphur, Sodium, Potassium, Magnesium and Chlorine.

The tablets actually contained insignificant amounts of the minerals described and were to be taken "2 tablets three times daily at meal time . . . with a little water, milk or orange juice." They were obviously of no use for the conditions mentioned. The iodine content was significant, but the use of these tablets as directed is not the proper manner to treat an actual iodine deficiency.

A second Morrison product was advertised thus:

A MARVELOUS DISCOVERY—ALFALFA-KELP CREAM

ALFALFA-KELP CREAM is made from Cream of Milk, Butter Milk, Lemon Juice, Soya Bean Oil, Alfalfa, Kelp and Acid Benzoic.

ALFALFA-KELP CREAM is an aid in neutralizing an acid condition and quickly relieving muscular aches and pains such as rheumatism, neuritis, arthritis and bone diseases. Just massage well for a minute.

ALFALFA-KELP CREAM is an aid in healing skin diseases, eczema, acne, pimples, psoriasis, blackheads, warts, bunions, sore feet, sprains, sunburn, piles, chapped hands and lips, abscesses and athlete's feet.

ALFALFA-KELP CREAM is a vanishing all purpose Beauty Cream, a tissue builder and an aid in activating the epithelial tissue cells and nature [sic] in restoring weak cells to a normal condition gradually eliminating wrinkles.

Analysis of Alfalfa-Kelp Cream by government chemists revealed that it consisted essentially of water, perfume, 24 per cent of phosphorus pentoxide, 20 per cent of calcium oxide, 13 per cent of anhydrous ferric oxide, 2 per cent of magnesium oxide and a small amount of iodine. Medical experts testified that the disorders which it was represented to cure, such as psoriasis, acne, eczema and abscesses, frequently are due to systemic conditions requiring particularized medicinal treatment, whereas this product would act only as an emollient. They pointed out that it was neither antiseptic nor germicidal and contained no analgesic or sedative, nor did it offer any drug that would act as a fungicide and hence it would not draw abscesses to a head or prove useful in removing the causes of arthritis, neuritis or bone diseases, which, the testimony showed, frequently result from infected tonsils, decayed teeth, venereal diseases, appendicitis and some other conditions.

The employment of this cream also was shown to be useless for wrinkles, which, the testimony brought out, are due to a pathologic change in the tissues, usually coming on with age, and hence neither this nor any other cream would eliminate them.

Because of sufficient evidence that Morrison's business constituted a swindle, it was debarred from the mails by a fraud order issued on Aug. 26, 1940.

Correspondence

THE ST. LOUIS MEDICAL SOCIETY AND THE MOUND CITY MEDICAL FORUM

To the Editor:—In the January 11 issue of THE JOURNAL under the column Bureau of Legal Medicine and Legislation there appears an article concerning Dr. Emerson Stanley Bailey. It states that this man is in good standing in the Medical Society of the City of St. Louis.

I wish to state that Dr. Bailey is not a member of the St. Louis Medical Society. He is probably a member of the Mound City Medical Forum, which is an organization of Negro physicians.

JOSEPH C. PEDEN, M.D., St. Louis.

President, St. Louis Medical Society.

NOTE.—Dr. Peden's letter relates to the medicolegal abstract of a recent decision of the supreme court, special term, Albany County, N. Y., in *Application of Bailey*, 20 N. Y. S. (2d) 915, published in THE JOURNAL, January 11, pages 159-160, in which appeared the following statement:

He [the petitioner] is a member in good standing of the Medical Society of the City of St. Louis, of the State of Missouri Medical Society and of the National Medical Association.

That statement is a condensation of the following language of the court, which appears on pages 917-918 of the published legal report:

From 1917 to the present time, petitioner is and still is a member in good standing of the Medical Society of the City of St. Louis, Missouri, called the St. Louis Medical Forum. From the year 1919 to the present time, petitioner is a member in good standing of the State of Missouri Medical Society, called the Missouri Pan-Medical Association. Since 1910, he has been and still is a member in good standing of the National Medical Association. . . .

According to the files of the American Medical Association, as the president of the St. Louis Medical Society points out, Dr. Emerson Stanley Bailey is not a member of the St. Louis Medical Society. Neither is he a member of the Missouri State Medical Association or of the American Medical Association.

USE OF CORTICAL EXTRACT TO PROMOTE EXCRETION OF BROMIDES

To the Editor:—The observations of Bondurant and Campbell appearing in the January 11 issue of THE JOURNAL, on the use of cortical extract to promote the excretion of bromide in cases of bromide intoxication, and the favorable comment which appears in the discussion of this paper are disconcerting in view of the chemical data presented. In the first place, the rationale which prompted the use of adrenal cortex extract in the treatment of bromism deserves closer scrutiny. It is true that, in adrenal cortical insufficiency, hypochloremia is a common finding and administration of cortical extract aids in returning the electrolyte composition of the blood toward normal. According to present concepts this is accomplished by promoting the renal reabsorption of sodium chloride, a defect in this mechanism existing in Addison's disease. The low blood chloride accompanying high levels of blood bromide, however, merely represents the replacement in the extracellular fluid of one halogen by another for the reason that the kidney makes little or no distinction in the excretion of chloride and bromide. Presumably no renal defect in the reabsorption of chloride exists in bromide intoxication. To postulate that in patients with high levels of blood bromide the administration of adrenal cortex extract would result in a marked preferential excretion of bromide is not only imparting a new ability to the kidney but is also ascribing to the extract the action of promoting the excretion of halide when its known action is to increase reabsorption.

Nevertheless, theoretical considerations must give way to experimental proof if the latter is convincing. Bondurant and Campbell present a number of experimental observations in which

bromides were administered to human subjects and the bromide and chloride content of the blood followed. Their results are presented in table 2. No mention of the chemical methods employed was made. The first column at the start of the experiment represents near basal conditions when little bromide was present in the blood. First glance reveals that the serum chloride levels of these patients varied more than 300 per cent, a fact which belies the physiologic dictum that the kidney zealously guards the electrolyte composition of the blood. Presumably the figures in the table represent milligrams per hundred cubic centimeters expressed either as Cl or as NaCl, no single value being sufficiently characteristic to allow a distinction. If the results are expressed as milligrams per hundred cubic centimeters of Cl, patient 2 has a serum chloride level of 195 milliequivalents; if, on the other hand, the results are expressed as milligrams per hundred cubic centimeters of NaCl patient 3 has a serum chloride level of 34 milliequivalents. Either figure is beyond possibility, the normal level being 100 milliequivalents.

This criticism is raised because the actions of the adrenal cortex extract are by no means innocuous. From what is known of their mechanism of action, they would promote the retention rather than the excretion of bromide. Bondurant and Campbell have raised the provocative question of how adrenal cortex extract would affect the course of chloride and bromide in the renal tubule. Surely more convincing chemical data should be brought to bear on the problem before preparations of adrenal cortex are to be regarded as useful in the treatment of bromide intoxication.

ALFRED GILMAN, PH.D., New Haven, Conn.

Assistant Professor, Laboratory of Pharmacology and Toxicology, Yale University.

SURGICAL TREATMENT OF HYPERTENSION

To the Editor:—In a communication in *THE JOURNAL*, January 11, de Takats discusses the priority of supradiaphragmatic splanchnic section. He takes issue with the statement (Peet, Woods and Braden, *THE JOURNAL*, Nov. 30, 1940, p. 1875) that "bilateral supradiaphragmatic splanchnic nerve section and lower dorsal sympathetic ganglionectomy were first introduced into this country by Peet in 1933." The preceding paragraph had clearly explained that this applied only to the surgical treatment of hypertension. As a matter of fact, the operation was first performed in this country by Peet in February 1929 for gastric crises (Peet, M. M.: Splanchnic Section for Hypertension; Preliminary Report, *Univ. Hosp. Bull.*, Ann Arbor 1:17-18 [June] 1935. Kahn, E. A., and Barney, B. F.: Anterolateral Chordotomy for Intractable Pain of Tabes Dorsalis, *Arch. Neurol. & Psychiat.* 38:467-472 [Sept.] 1937).

De Takats did not perform the operation until October 1932, when he did it for juvenile diabetes (de Takats, Geza, and Fenn, G. K.: Bilateral Splanchnic Nerve Section in a Juvenile Diabetic, *Ann. Int. Med.* 7:422-430 [Oct.] 1933).

In his letter de Takats also states that "there is, of course, no question of priority in the matter, as Pieri adequately described and illustrated this approach in 1930." This statement is not entirely correct. Foerster divided the splanchnic nerves above the diaphragm in 1924 for the gastric crisis of tabes (Foerster, O.: Die Leitungsbahnen des Schmerzgefühls und chirurgische Behandlung der Schmerzzustände, 1927, Urban and Schwarzenberg, Berlin; also personal communication to the author), though he did not remove the lower dorsal sympathetic chain.

Pieri described the approach in 1927 (*La resezione dei nervi splanchnici*, *Ann. ital. di chir.* 6:678 [July] 1927) but did not perform the operation until July 1929, when he did a unilateral procedure for atony of the stomach. Pieri was the first to perform splanchnic section for hypertension (May 1930), again a unilateral procedure. (Pieri, G.: Tentativi di cura chirurgica

dell'ipertensione arteriosa essenziale, *Riforma med.* 48:1173 [July 30] 1932).

Reference has been made to the work of Foerster and Pieri by Peet, and though the work of de Takats was not overlooked there did not seem any reason to mention it in an article on the surgical treatment of hypertension.

EDGAR A. KAHN, M.D., Ann Arbor, Mich.

EFFECTS OF ALCOHOL ON DRIVING SKILL

To the Editor:—In view of the interest in our paper (*THE JOURNAL*, Nov. 9, 1940, p. 1600) dealing with the effect of alcohol, manifested by the communications of Drs. Bogen, Muehlberger, Bavis and Heise (*THE JOURNAL*, Dec. 21, 1940, p. 2198), it seems desirable to clarify our stand on certain points at issue.

It was not our purpose in the paper, as was implied by Bavis, to investigate the impairment of driving ability at a blood alcohol concentration of 0.15 per cent but rather to demonstrate the degree of variation in the loss of skill in certain tests related to driving in different persons at the same blood alcohol concentration. Muehlberger states that this biologic variation does not exceed 10 to 15 per cent, yet our experiments showed a much greater variation. For example, a loss of 8 per cent in the tests was accompanied by blood alcohol concentrations ranging from 0.55 to 0.145 per cent. This is in accord with the extremes of variation in tolerance reported by Bogen and by Jetter. The criticism that their criteria of drunkenness indicated a more severe intoxication than that which would interfere with motor vehicle operation in no way invalidates their evidence of marked differences in individual tolerance to alcohol.

Bavis states that the learning curve prejudiced the results in our cases. Space restriction did not permit inclusion of control data, which showed a mean increase in performance without alcohol of 0.7 per cent, range from plus 5.2 per cent to minus 3.7 per cent. Nor would the practice effect invalidate the one point we attempted to make, namely the range of individual variation in tolerance.

We quite agree with Bogen that blood alcohol concentration is the best single criterion of intoxication and that concentrations even lower than 0.15 per cent will produce in all persons some degree of impairment of driving skill. Whether this impairment will in all cases be sufficient to justify a conviction for being intoxicated or under the influence of liquor depends on the definition of these terms prevailing in the particular locality. Thus in Arizona "If the ability of the driver of an automobile has been lessened in the slightest degree by the use of intoxicating liquors, then the driver is deemed to be under the influence of intoxicating liquor," while in California being "under the influence" consists in that degree of influence "which causes him to operate his car in a manner different from that in which it would be operated by an ordinarily prudent and cautious person." In the first case, the person is compared with himself before drinking, and there is no doubt that concentrations below 0.15 per cent would invariably produce some lessening of ability. In the second case, the person is compared with "an ordinarily prudent and cautious person," and here the factors of variation in driving skill and tolerance to alcohol play a very important part. In fact, our work shows these variations to be so great as to overshadow the effects of alcohol in the concentrations involved, and it is on this basis that we question the tenability of a fixed limit of 0.15 per cent. That further work, with apparatus more adequate to test judgment, and over a wider range of alcohol concentrations is indicated is self evident. It is to be hoped that when these data are obtained a uniform, comprehensive and just definition of "under the influence" will have been formulated, so that our knowledge may be put to a constructive use.

HENRY NEWMAN, M.D., San Francisco.

Medical Examinations and Licensure

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, February 22, page 779.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 17-19. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARKANSAS: * Medical. Little Rock, June 5-6. Sec., Dr. D. L. Owens, Harrison. *Eclectic*. Little Rock, June 5-6. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), San Francisco, April 16. *Written*. San Francisco, June 30-July 3. Sec., Dr. Charles B. Pinkham, 1020 N St., Sacramento.

COLORADO: * Denver, April 1. *Applications must be on file not later than March 15*. Sec., Dr. Harvey M. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: * Medical. *Written*. Hartford, March 11-12. *Endersement*. Hartford, March 25. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic*. Derby, March 11-12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: July 8-10. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * Washington, May 12-13. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: * Jacksonville, June 23-24. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, April 1. Dir., Bureau of Occupational License, Mr. H. B. Whitlesey, 335 State Capitol Bldg., Boise.

ILLINOIS: Chicago, April 1-3. Superintendent of Registration, Department of Registration and Education, Mr. Lucien A. File, Springfield.

INDIANA: Indianapolis, June 17-19. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, Citizens Trust Bldg., Fort Wayne.

KANSAS: Kansas City, June 17-18. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, June 5-7. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

MAINE: Portland, March 11-12. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical*. Baltimore, June 17-20. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic*. Baltimore, June 17-18. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, March 11-13. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: * Ann Arbor and Detroit, June 11-13. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing.

MINNESOTA: * Minneapolis, April 15-17. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: *Reciprocity*. Helena, March 31. *Written*. Helena, April 1. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEW HAMPSHIRE: Concord, March 13-14. Sec., Board of Registration in Medicine, Dr. T. P. Burroughs, State House, Concord.

NEW JERSEY: Trenton, June 17-18. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 14-15. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NORTH DAKOTA: Grand Forks, July 1-4. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: Columbus, April 1. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: * Oklahoma City, June 11-12. Sec., Dr. James D. Osborn Jr., Frederick.

PENNSYLVANIA: Philadelphia and Pittsburgh, July. Act. Sec., Bureau of Professional Licensure, Department of Public Instruction, Mrs. Marguerite G. Steiner, 358 Education Bldg., Harrisburg.

SOUTH DAKOTA: * Pierre, July 15-16. Dir., Medical Licensure, Dr. J. F. D. Cook, State Board of Health, Pierre.

TENNESSEE: Memphis, March 26-27. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

VIRGINIA: Richmond, June 17-20. Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WEST VIRGINIA: Charleston, March 3. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Tucson, March 18. Sec., Mr. Franklin E. Roach, Science Hall, University of Arizona, Tucson.

COLORADO: March 6-7. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

DISTRICT OF COLUMBIA: Washington, April 21-22. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: De Land, June 7. *Applications must be on file not later than May 24*. Sec., Prof. J. F. Conn, John B. Stetson University, De Land.

OKLAHOMA: Oklahoma City, May 22. Sec. of State, Hon. C. C. Childress, State Capitol, Oklahoma City.

OREGON: Corvallis, July 12. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, April 3-4. Sec., Division of Examiners, Rev. Nicholas H. Serror, Providence College, Providence.

SOUTH DAKOTA: June. Sec., Dr. G. M. Evans, Yankton.

WISCONSIN: Madison, April 5. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Avenue, Milwaukee.

Florida November Report

Dr. William M. Rowlett, secretary, State Board of Medical Examiners of Florida, reports the examination held at Tampa, Nov. 18-19, 1940. Fifty-six candidates were examined, 53 of whom passed and 3 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Yale University School of Medicine.....	(1935)		83.4
Emory University School of Medicine.....	(1938)		78.7
(1939) 84.6, (1940) 76.8, 79.3, 82.8, 84.4			
University of Georgia School of Medicine.....	(1937)		81.4
(1938) 80, (1939) 77.7			
Northwestern University Medical School.....	(1932)		82.2
Rush Medical College.....	(1903) 76.4, (1927) 83.3, (1932)		79.8
Indiana University School of Medicine.....	(1938) 76, (1939)		81.8
University of Illinois College of			78.8
Louisiana State University Medic			77.5
Tulane University of Louisiana S			78,
(1937) 75.3, (1939) 83.7, (1940) 75.3			
University of Maryland School of Medicine and College			
of Physicians and Surgeons.....	(1902) 80.5, (1935)		79.4
Tufts College Medical School.....	(1940)		83.7
Harvard Medical School.....	(1937)		89.1
University of Minnesota Medical School.....	(1927)		76.5
(1938) 82.5, (1940) 83.5			
Albany Medical College.....	(1940)		85.6
Columbia University College of Physicians and Surgeons.....	(1940)		84.9
Long Island College Hospital.....	(1913)		78
Long Island College of			85.1
New York Medical College			78.8
University and Bellevue			79.5
Univ. of Rochester Scho			81.7
Duke University School of Medicine.....	(1936)		87.8
Ohio State University College of Medicine.....	(1938)		85.1
University of Cincinnati College of Medicine.....	(1929)		77.7
(1932) 76.7, (1939) 85.7			
University of Oklahoma School of Medicine.....	(1938)		84.3
Jefferson Medical College of Philadelphia.....	(1929)		80.8
University of Pennsylvania School of Medicine.....	(1938)		84.6
Medical College of the State of South Carolina.....	(1940)		80.7
University of Tennessee College of Medicine.....	(1926)		79.2
(1937) 76.4, (1938) 76.2, (1939) 75.1, 77.2			
Medical College of Virginia.....	(1931)		75
University of Virginia Department of Medicine.....	(1929)		79.6
Marquette University School of Medicine.....	(1938)		83.3

School	FAILED	Year Grad.	Number Failed
Rush Medical College.....	(1933)		1
St. Louis University School of Medicine.....	(1923)		1
University and Bellevue Hospital Medical College.....	(1906)		1

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice—Liability of Physician for Blindness Caused by Administration of Tryparsamide.—In October 1923 the plaintiff became unconscious and the defendant physician was called to diagnose and treat him. After many tests and a consultation with other physicians the plaintiff's condition was diagnosed as cerebrospinal syphilis. The plaintiff remained unconscious for nearly a month, during which time the defendant performed thirteen spinal punctures to withdraw spinal fluid so as to prevent convulsions. The published report does not indicate that any tests were made on this fluid. He also administered numerous injections of neosarsphenamine, which was at that time considered an approved treatment for syphilis. When he administered the last dose, in the latter part of November 1923, according to the plaintiff, he told the patient that "he had been cured." During the next fourteen years the plaintiff enjoyed good health. His eyesight was good but in 1930, although the examination of his eyes disclosed no disease, he obtained eyeglasses from an optical company to assist him in reading intricate plans used in his service as a machinist in the navy yard. On an extremely hot day, Aug. 14, 1937, the plaintiff fainted while waiting for a street car. When he regained consciousness he was taken to a hospital, given preliminary treatment and then sent home. The defendant was again called and he found him suffering from a violent headache and incoherence of speech. On August 30 the defendant prepared an "official affidavit" for the navy yard, to enable the plaintiff to get relief payments, and certified that the plaintiff was sick and suffering from hypertension or high blood pressure. Notwithstanding this certification and a nega-

tive Wassermann reaction of the blood, the defendant concluded that the plaintiff had a recurrence of cerebrospinal syphilis and commenced to administer a series of injections of tryparsamide, an approved treatment for that disease. This drug, an arsenic compound, was sold in ampules around each of which was a pamphlet advising, among other things, that treatment be discontinued immediately on the appearance of any ocular disturbance. After or at the time of the third injection the plaintiff complained that the injections were making his eyes a little blurry, but each time he complained the defendant advised him that his difficulty would clear up. It did not, however, and the plaintiff subsequently became almost completely blind, characterized by a "central, or 'gun barrel,' vision" due to permanent optic atrophy. The plaintiff brought suit against the defendant physician for malpractice and obtained a judgment in his favor. The defendant then appealed to the Supreme Court of Appeals of Virginia.

The plaintiff testified that after he complained of having trouble with his eyes the defendant continued the tryparsamide treatments and gave him, in all, nine injections. Dr. Diehl, an eye, ear, nose and throat specialist, corroborated this by testifying that the defendant told him he had given the plaintiff nine injections. The defendant denied that he told the plaintiff in 1923 that he was cured, that he continued the treatments after the plaintiff complained of his eyes and that he told Dr. Diehl that he had administered nine injections. He maintained that he directed the plaintiff to go to Dr. Diehl after he had administered only two injections. The evidence established that in 1923 the plaintiff was suffering from "cerebrospinal syphilis, an incurable disease," and the medical testimony was to the effect that in August 1937 he was still suffering from the disease and that the defendant was justified in treating him for that disease.

The defendant maintained that there were two schools of medical opinion as to whether the use of tryparsamide should be continued after the discovery of optic disturbances. The one theory reasoned that the continued use of the drug by helping the syphilis would help the optical disturbances; the other theory suggested that the drug be discontinued immediately on complaint of visual trouble. The defendant therefore contended that if he followed either one of these theories he had not been negligent. The court held that the defendant's testimony, that he stopped giving the injections after the plaintiff complained about his vision, committed him to the second school of medical opinion. However, since his testimony in that regard was disputed by the plaintiff, it was the opinion of the court that the important question for the jury's determination did not relate to the rule that where there are two schools of thought in medical practice and the physician follows one he cannot be negligent, but did relate to whether or not the defendant properly and carefully followed the branch of medical opinion which he had adopted. On this point, the jury resolved the question against him.

A physician, continued the court, is liable only for a failure to possess and exercise that degree of care and skill ordinarily exercised by prudent practitioners in his community. A physician, however, impliedly represents that he is keeping abreast of the literature and that he has adopted those technics which have become standard in his field of practice. Negligent practice of a physician in the diagnosis and treatment of a patient can be established only by expert testimony. If the evidence leaves it equally probable that a bad result may have been due to a cause for which the physician was not responsible as to a cause for which he was responsible, the patient cannot recover. In the present case, therefore, the plaintiff was required to show that his blindness was caused not by the cerebrospinal syphilis but by the injections of tryparsamide and that those injections were given in contravention of good practice in that community. If it was equally probable that the blindness was caused by either, the plaintiff could not recover. The evidence showed that it is well known in medical circles that either the cerebrospinal syphilis or the injections of tryparsamide could cause serious eye trouble. Two physicians did testify that in their opinion the atrophy of the plain-

tiff's optic nerves was of syphilitic origin, but they admitted that it was impossible to determine by examination whether such was due to syphilis or to arsenical poisoning. It would appear that no amount of clinical research could determine which of the forces here at work caused the atrophy, and so it was for the jury to weigh the probabilities and decide. The jury did so and found, which finding in the opinion of the court was justified by the evidence, that it was not equally probable that syphilis caused the eye trouble but rather that the defendant's treatment was the proximate cause of the optic atrophy. The evidence showed that for fourteen years after being treated for syphilis the plaintiff had had no eye trouble; that in 1937, despite a negative Wassermann reaction, the defendant treated him for syphilis with tryparsamide, a potent drug which should be administered only under ocular control and which the defendant failed to do; that in spite of the plaintiff's complaints of increasing visual disturbances the defendant continued the injections of the drug and that more than a year later the plaintiff underwent extensive examinations for the presence of syphilis which proved negative, although the blindness remained. Because there was evidence, though conflicting, that at the time the plaintiff fainted on Aug. 14, 1937 he had a headache, an elevation of blood pressure and incoherence of speech, and in view of his age of almost 62 years, the oppressive heat at the time and the negative Wassermann reaction, the court was of the opinion that there was evidence from which the jury might have concluded that there was not sufficient proof of the recurrence of syphilis to justify the defendant in administering tryparsamide in an uncontrolled manner. In fact, there was medical testimony that such treatments, persistently administered despite increasing loss of vision, may be proper only in the case of an extremely aggravated syphilitic condition, and there was evidence in the present case that no such aggravated condition existed. The court, therefore, refused to disturb the jury's verdict and so it affirmed the judgment for the plaintiff.—*Reed v. Church*, 8 S. E. (2d) 285 (Va., 1940).

Society Proceedings

COMING MEETINGS

- Alabama, Medical Association of the State of, Mobile, Apr. 15-17. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.
- American Association of Anatomists, Chicago, Apr. 9-11. Dr. E. R. Clark, Dept. of Anatomy, University of Pennsylvania School of Medicine, Philadelphia, Secretary.
- American Association of Pathologists and Bacteriologists, New York, Apr. 10-11. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.
- American College of Physicians, Boston, Apr. 21-25. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.
- American Dermatological Association, New Orleans, Apr. 7-11. Dr. Harry R. Foerster, 208 East Wisconsin Ave., Milwaukee, Secretary.
- American Physiological Society, Chicago, Apr. 16-19. Dr. Philip Bard, 710 North Washington St., Baltimore, Secretary.
- American Society for Experimental Pathology, Chicago, Apr. 15-18. Dr. Harry P. Smith, Dept. of Pathology, University of Iowa, Iowa City, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Chicago, Apr. 15-19. Dr. G. Philip Grabfield, 319 Longwood Ave., Boston, Secretary.
- American Society of Biological Chemists, Chicago, Apr. 18-19. Dr. C. G. King, Dept. of Chemistry, University of Pittsburgh, Pittsburgh, Secretary.
- Arizona State Medical Association, Phoenix, Apr. 16-19. Dr. W. Warner Watkins, 18 East Monroe St., Phoenix, Secretary.
- Arkansas Medical Society, Little Rock, Apr. 14-16. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.
- Federation of American Societies for Experimental Biology, Chicago, Apr. 15-19. Dr. D. R. Hooker, 19 West Chase St., Baltimore, Secretary.
- Louisiana State Medical Society, Shreveport, Apr. 21-23. Dr. F. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.
- Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 22-23. Dr. Richard T. Shackelford, 1211 Cathedral St., Baltimore, Secretary.
- Northern Tri-State Medical Association, Tiffin, Ohio, Apr. 8. Dr. E. Benjamin Gillette, 320 Michigan St., Toledo, Ohio, Secretary.
- South Carolina Medical Association, Greenville, Apr. 15-17. Dr. Julian P. Price, 105 West Cheves St., Florence, Secretary.
- Southeastern Surgical Congress, Richmond, Va., March 10-12. Dr. Benjamin T. Beasley, 45 Edgewood Ave., S.E., Atlanta, Ga., Secretary.
- Tennessee State Medical Association, Nashville, Apr. 8-10. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery 10:189-228 (Dec.) 1940

- Drainage and Delayed Operation in Acute Appendicitis. H. Martz, Birmingham, and M. N. Foote, Brooklyn.—p. 189.
- Prostatic Obstruction. E. C. Coats, Florence.—p. 195.
- Acute Bacillary Dysentery Treated with Sulfapyridine: Report of Cases. S. H. Welch, J. Meyer, Birmingham, and J. S. Smith, Montgomery.—p. 198.
- Empyema Thoracis, with Special Reference to Chronic Stage. H. Linder, Birmingham.—p. 205.
- Diagnosis of Enterobius Vermicularis Infestation, with Observations on Treatment with Hexylresorcinol by Mouth and in Form of Rectal Jelly. W. H. Y. Smith and S. R. Damon, Montgomery.—p. 209.
- Complications Following Thyroidectomy. J. D. Wilson, Birmingham.—p. 211.

American J. Obstetrics and Gynecology, St. Louis 40:925-1106 (Dec.) 1940. Partial Index

- Hormone Studies in Artificial Menopause Produced by Roentgen Rays. I. T. Nathanson, Charlotte Rice and J. V. Meigs, Boston.—p. 936.
- *Recognition and Treatment of Fetal Heart Arrhythmias Due to Anoxia. C. J. Lund, Madison, Wis.—p. 946.
- Further Studies on Hormone Excretion During Menstrual Cycle. F. E. D'Amour, Denver.—p. 958.
- *Evaluation of Effect of Antenatal Antisyphilitic Therapy on Fetal Mortality and on Congenital Syphilis. L. V. Dill, H. J. Stander and C. E. Isenhour, New York.—p. 965.
- Psychiatric Contraindications in Use of Estrogens During Menopause. W. L. Weaver, White Plains, N. Y.—p. 980.
- *Roentgen Visualization of Placenta by Soft Tissue Technic: Report of Two Years' Experience. A. L. Dippel and W. H. Brown, Baltimore.—p. 986.
- Chronic Nephritis and Pregnancy Fatalities in Philadelphia. N. F. Paxson, Philadelphia.—p. 995.
- Effect of Estrogens on True Preeclampsia and Eclampsia. E. Shute, London, Ont., Canada; brief note by M. M. O. Barrie, London, England.—p. 1003.
- Results in Treatment of 600 Incomplete Abortions. H. P. Mencken and H. H. Lansman, Flushing, N. Y.—p. 1011.
- Lead Mobilization Accompanying Toxemia of Pregnancy. T. V. Lelonoff, J. G. Reinhold, Helena E. Riggs and C. Cohn, Philadelphia.—p. 1017.
- Operation for Uterine Retrodisplacement and Prolapse by Reduction and Attachment of Round Ligaments. K. P. A. Taylor, Puerto Arnuelles, Panama.—p. 1026.
- Nausea and Vomiting of Pregnancy Due to Allergic Reaction: Study of 192 Cases. J. W. Finch, Hobart, Okla.—p. 1029.
- Effects of Stilbestrol on Lactation. A. R. Abarbanel and M. J. Goodfriend, New York.—p. 1037.
- Cobra Venom for Intractable Pain. J. W. Kelso, Oklahoma City.—p. 1050.

Fetal Heart Arrhythmias Due to Anoxia.—Lund points out that, since the rate and rhythm of the fetal heart are the best criteria available for studying the condition of the fetus during pregnancy and labor, frequent determination and consequent treatment may forestall respiratory depression due to anoxia. Fetal anoxia, infrequently recognized and rarely treated antenatally, can quickly produce grave fetal complications. The slowing of the fetal heart rate has long been considered a sign of developing fetal asphyxia. Waters and Harris emphasized the fact that anoxia of the fetus can be recognized by change in the fetal heart rate and successfully treated by oxygen administration to the mother forestalling respiratory anoxic depression. The author cites 8 cases which demonstrate slowing in fetal heart rate due to anoxia and the response to oxygen. Now since auscultatory and recording devices have been perfected objective evidence of these arrhythmias can be presented. The response to oxygen therapy should occur within ten minutes and frequently is apparent in less than five minutes. If after fifteen minutes no improvement is noticed it may be assumed that oxygen will be of no value. Failure of the fetus to receive oxygen, when it is assumed that the maternal blood stream is well saturated

with it, may be due to disturbances of placental circulation, cord entanglement and prolapse. These constitute the most frequent causes of intrauterine asphyxia. The time required to prepare a patient for immediate operative delivery under such circumstances is usually more than ten minutes and can be done while oxygen is being given; thus no hazard is created for the infant. Frequently the improvement in the fetal heart rate will obviate the necessity of exigent operative delivery and its danger to the mother and the infant. Early recognition of fetal anoxia and its treatment by maternal oxygen therapy will prevent many cases of asphyxia neonatorum.

Effect of Antepartum Antisyphilitic Therapy on Fetal Mortality.—Dill and his associates studied the records of 386 patients (453 pregnancies) treated for syphilis at the New York Lying-In Hospital during the last seven years. They tried to determine which patients may expect a satisfactory outcome of the pregnancy and attempted to find whether the type and the amount of antisyphilitic therapy appreciably affected the fetal mortality and the incidence of infection. All of the patients treated had histories of syphilitic infection and had been treated previously for the disease, and serologic studies and family investigation failed to leave any reasonable doubt that the patient did not have syphilis. Each patient had been given more than one treatment for the suspected syphilis. More than 85 per cent of the pregnancies of these syphilitic patients terminated in living term babies, a percentage which is significantly lower than that among a nonsyphilitic control group of patients. Deadbirths and neonatal deaths accounted for the greatest loss of life; this loss exceeded control figures by more than 100 per cent. The number of premature living babies and premature neonatal deaths is also distinctly increased over control levels. With pediatric follow-up of more than six months the authors were able to find only 9 pregnancies resulting in babies which could definitely be called syphilitic, all of which were subjected to treatment. Two other babies who were subjected to treatment before the end of the first month of life had an immediate reversal of serologic findings. The percentage of syphilitic babies was higher when the maternal blood Wassermann was positive, but a significant difference was found in the number of fetal casualties. There were 4 infants in whom the blood Wassermann reaction failed to become negative even after two or three months and in 1 it remained positive for six months. These children have shown no clinical evidence of syphilis and with no treatment have remained clinically and serologically free from the disease for more than four years. Of the syphilitic babies, 20 per cent had osseous changes compatible with congenital syphilis, but among 80 per cent there were no roentgenologic changes. None of the placentas of syphilitic infants showed microscopic evidence of syphilis. Except in relation to the number of syphilitic babies and fetal deaths occurring in the different treatment groups the authors believe it is impossible to determine the effects of treatment. A steadily progressive diminution of syphilitic babies was observed with the increased amount of therapy that the mother received ante partum and only 1 fetus was found to be syphilitic; the mother had received more than 6 Gm. of an arsenical preparation. No correlation of the total amount of bismuth therapy to the evidence of syphilitic infection of the fetus was noted. Deadborn babies and neonatal fetal deaths apparently did not vary directly with the amount of either type of treatment. On the contrary, with advancing dosages of both arsenic and bismuth a steady fall in the number of fetal casualties was found until, with good therapeutic doses of arsenic a number not exceeding the control level was obtained. No syphilitic babies were obtained in the group receiving treatment both prior to and during pregnancy, even though the treatment was minimal in both instances. The incidence of syphilitic babies decreased significantly as the length of treatment increased. It seemed that the longer the age of the infection the lower was the incidence of syphilitic infants. Dystocia, pyelitis and antepartum bleeding were not observed to have an increased frequency among syphilitic mothers with or without previous treatment. However, the incidence of toxemia of pregnancy was increased although the increase could not be correlated with the amount of treatment, the time it was begun or the amounts of arsenic or bismuth

preparations received. The conclusion is that syphilis need no longer constitute a major cause of fetal mortality or a frequent disease of the newborn, as early antepartum therapy, greatly enhanced by treatment received prior to conception, promises a favorable outcome.

Roentgen Visualization of Placenta.—Dippel and Brown analyze the clinical value of the roentgenologic visualization of the placenta after using it in 262 examinations. They clearly saw the placenta in 236, or 90 per cent, of the observations. Hydramnios accounted for nonvisualization in 5.73 per cent of the soft tissue roentgenograms, unsatisfactory roentgenograms accounted for 3.05 per cent of the failures, and it was impossible to see the placenta in 2 of 8 cases of twin pregnancy. Immaturity, provided the pregnancy has advanced beyond the midpoint, and abnormal presentations and positions are not hindering factors. Placental calcification is rarely extensive enough to aid in its localization. The fetal position is not a reliable criterion of the site of the placenta. Placental implantations were almost equally divided. However, with low implantation, essentially eight times as many placentas were implanted on the anterior as on the posterior wall. The average thickness of the walls of the fundus uteri near term measured 1.24 cm. on roentgenograms made at a distance of 42 inches. Only 11 of 92 cases of vaginal bleeding were found roentgenographically and clinically to have true placenta praevia; 15 other cases presented roentgen evidence of low implantation without the usual clinical signs. Soft tissue roentgenography in cases of vaginal bleeding is of greatest value when the whole placenta is visualized above the iliac crests. These constitute 88 per cent of the instances of vaginal bleeding in the later months of pregnancy.

American Journal of Ophthalmology, St. Louis

23:1311-1428 (Dec.) 1940

- Comparative Study of Effects of Mecholyl, Doryl, Eserine, Pilocarpine. Atropine and Epinephrine on Blood Aqueous Barrier. K. C. Swan and W. M. Hart, Iowa City.—p. 1311.
Mucopolysaccharide Acid of Cornea and Its Enzymatic Hydrolysis. K. Meyer and Eleanor Chaffee, New York.—p. 1320.
Dark Adaptation and Dietary Deficiency in Vitamin A. L. F. Steffens, H. L. Bair and C. Sheard, Rochester, Minn.—p. 1325.
Glass Membranes in Eyc: Part II. Lamina Vitrea Chorioidea. A. Loewenstein, Glasgow, Scotland.—p. 1340.
Standards for Outpatient Ophthalmologic Departments: II. Standards for Nursing Service: III. Standards for Medical Social Service. C. Berens, Ruth C. Williams and Eleanor Brown Merrill, New York.—p. 1352.
Evolution of Lens Lesions in Eye Perforations and Ruptures: Medico-legal Study. M. Davidson, New York.—p. 1358.
Pharmacologic Behavior of Intraocular Muscles: II. Sensitization Phenomena in Dilator and Sphincter Iridis. E. Sachs and P. Heath, Detroit.—p. 1376.

Canadian Medical Association Journal, Montreal

43:509-622 (Dec.) 1940. Partial Index

- Diagnosis and Treatment of Hyperthyroidism. J. H. Means, Boston.—p. 509.
Diets in Dyspepsia. J. Daly, Toronto.—p. 513.
Value of Elimination Diets in Treatment of Infantile Eczema. A. R. Birt, Winnipeg, Man.—p. 520.
Surgery of the Aged. A. W. S. Hay, Winnipeg, Man.—p. 531.
Treatment of Painful Feet. C. C. Ross, London, Ont.—p. 537.
Trends in Military Surgery in First Year of War. J. A. MacFarlane, Toronto.—p. 540.
*Nail Polish Dermatitis. J. F. Burgess, Montreal.—p. 544.
Critique of Surgical Treatments for Deafness. E. P. Fowler Jr., New York.—p. 546.
Termination of Pregnancy Before Period of Viability by Abdominal Hysterotomy Through Lower Uterine Segment. H. W. Johnston, Toronto.—p. 552.
Treatment of Tumors of Salivary Glands by Radical Excision. R. M. Jones, Toronto.—p. 554.
Recent Advances in Tuberculosis. E. Mayer, New York.—p. 565.
Psychoses Associated with Pregnancy and Puerperium. W. H. Cruickshank, Toronto.—p. 571.
Carcinoma of Breast: Some Observations on Preoperative X-Radiation. B. R. Mooney, Winnipeg, Man.—p. 580.
Amebic Dysentery and Ulcerative Colitis: Report of Seven Cases. Pauline Beregoff-Gillow, Montreal.—p. 588.
Survey of Intestinal Protozoa in a Private Practice in Montreal. Pauline Beregoff-Gillow, Montreal.—p. 592.

Nail Polish Dermatitis.—Burgess reports 10 cases with a history of repeated violent or mild exacerbations every few days of a patchy eruption of the face and neck. The eruption was not uniformly symmetrical but was frequently unilateral. The areas affected were usually about one or both eyes, about the mouth,

the sides of the neck and the supraclavicular regions. In 1 case pruritus ani was due to repeated contact with nail polish, in the eruption was on the shoulders and in 2 in the midstream areas. Obviously repeated contact with the fingers in these areas precipitated the dermatitis and, once the eruption occurred, the incessant burning and irritation greatly increased the contact. Freshly applied nail polish appeared more highly irritant than when it had been on the nails for some days. Eczema involving the fingers was encountered only once. The patch test in the reported cases was uniformly positive. In order to ascertain its value, 25 random cases were tested to different nail polishes and each gave a negative patch test. A number of other cases with similar eruptions gave negative reactions, but the eruption disappeared on discontinuance of nail polish. It is probable that a negative patch test on some other area of the body does not necessarily exclude the possibility of nail polish as a causative agent, and in the absence of other etiologic factors contact with nail polish appears indicated.

Georgia Medical Association Journal, Atlanta

29:561-608 (Dec.) 1940

Treatment of Pneumonia in Adults with Sulfapyridine. J. F. Hanson, Macon.—p. 561.

Journal of Experimental Medicine, New York

72:623-790 (Dec.) 1940. Partial Index

- Comparative Susceptibility of Fetal and Postnatal Guinea Pigs to Virus of Epidemic Influenza. H. A. Dettwiler, N. P. Hudson and O. C. Woolpert, Columbus, Ohio.—p. 623.
Quantitative Aspects of Homologous and Heterologous Active Immunity to Strains of Virus of Epidemic Influenza. M. D. Eaton and H. E. Pearson, Berkeley, Calif.—p. 635.
Isolation of Blood Group Specific B Substance. E. Witebsky and N. C. Klendshoj, Buffalo.—p. 663.
Studies on Mechanism of Vomiting Produced by Staphylococcus Enterotoxin. M. Bayliss, Baltimore.—p. 669.
Studies of Transmissible Agent of Rous Chicken Sarcoma I: Precipitation with Basic Proteins. D. Shemin, E. E. Sprout and J. W. Jobling, New York.—p. 697.
Behavior of Renal Blood Flow After Partial Constriction of Renal Artery. H. A. Schroeder and J. M. Steele, New York.—p. 707.
Study of Neurotropic Tendency in Strains of Virus of Epidemic Influenza. T. Francis Jr. and Alice E. Moore, New York.—p. 717.
Antigenic Potency of Epidemic Influenza Virus Following Inactivation by Ultraviolet Radiation. J. E. Salk, G. I. Lavin and T. Francis Jr., New York.—p. 729.
Etiology of Hypertension Due to Complete Renal Ischemia. M. Prinzmetal, H. A. Lewis and S. D. Leo, Los Angeles.—p. 763.

Journal-Lancet, Minneapolis

60:523-560 (Dec.) 1940

- Routine Ocular Muscle Investigation. W. H. Fink, Minneapolis.—p. 523.
Selenium Poisoning in the Human: Preliminary Case Report. R. E. Lemley, Rapid City, S. D.—p. 528.
*Pruritus Vulvae as Possible Early Symptom of Unrecognized Diabetes. L. H. Winer and E. A. Strakosch, Minneapolis.—p. 532.
New Type of Obstetric Forceps. F. A. LaBreck, Eau Claire, Wis.—p. 534.
A New University Health Service Building. W. E. Forsythe, Ann Arbor, Mich.—p. 536.
Are Track Stars Barrel Chested? S. A. Weisman, Minneapolis.—p. 539.
Contribution of Physical and Health Education Teacher to the Guidance Program. Ruth Strang, New York.—p. 542.

Vulval Pruritus in Unrecognized Diabetes.—Winer and Strakosch suggest that diabetes is more often the underlying cause of pruritus vulvae than is generally suspected. Itching of the vulva is often the first symptom of diabetes or rather of hyperglycemia. Many patients who do not have sugar in the urine give a history on questioning suggestive of diabetes, and the blood sugar content may be found to be elevated. A study of 31 patients admitted to the Minneapolis General Hospital Clinic between January 1939 and August 1940 complaining of vulval pruritus revealed that 26 had diabetes. Eleven of the 26 were known to have the disease and the remaining 15 were found after investigation to have it. The histories of these 15 patients showed that they were each seen by from two to five physicians. The ages of the patients ranged between 30 and 50 years. All were married, but parous and nulliparous women were equally divided. They all gave histories of polyphagia, polydipsia and polyuria. The duration of itching varied from three to fourteen months before the diagnosis of diabetes had been made. Several

of these women were under psychiatric treatment without avail and were being considered for institutional care. One patient had been scheduled for a vulvectomy, which was subsequently unnecessary. The urines of the patients were negative for sugar on two or more occasions, and the urine was free of sugar at the time of admission to the hospital. Fungi were found in 8 of 10 patients thus examined, but in these local therapy alone did not give relief. One patient with fungi was resistant to treatment until her husband was similarly treated. The fasting blood sugar content of all the patients was either at the upper limit or above normal, one being 235 mg. per hundred cubic centimeters of blood. The sugar tolerance test in all showed a decided tendency of the blood sugar to remain elevated far above normal from three to six hours after the ingestion of dextrose. All the patients responded to treatment only after their diet was regulated and the blood sugar reduced to normal. In addition to the low carbohydrate diet 2 patients required insulin. Diagnosis of diabetes mellitus requires more than a positive finding of sugar in the urine. In addition to a blood sugar determination, the sugar tolerance test was useful in verifying the diagnosis.

Journal of Thoracic Surgery, St. Louis

10:131-250 (Dec.) 1940

- Experimental Study of Fate of Remaining Lung Following Total Pneumonectomy. J. J. Longacre and R. Johansmann, Cincinnati.—p. 131.
Studies in Experimental Production of Pulmonary Emphysema. J. R. Paine, Minneapolis.—p. 150.
Position of Patient in Performance of Thoracoplasty and Certain Other Operations: Note. H. C. Trumble, Melbourne, Australia.—p. 176.
*Role of Bronchoscopy in Treatment of Pulmonary Abscess. C. L. Jackson and A. R. Judd, Philadelphia.—p. 179.
Some Controversial Matters of Anesthesia for Thoracic Surgery. H. K. Beecher, Boston.—p. 202.
*Operative Treatment of Cardiospasm. H. K. Gray and I. C. Skinner, Rochester, Minn.—p. 220.

Bronchoscopy in Pulmonary Abscess.—Jackson and Judd believe that there is a definite place for bronchoscopy in the treatment of pulmonary abscess other than its diagnostic value. In selecting patients for bronchoscopy they chose those with a single abscess cavity determined by thorough roentgen examination, and those who although showing multiple or multilocular cavities present satisfactory evidence that the original lesion was singly cavernous. Of the 124 cases analyzed the cavities seemed to show a predilection for the right side (93 as compared to 31 in the left lung) and for the lobar apex when occurring in the lower lobe of the right lung. There was no definite relationship between the location of the cavity and the ability of the patient to survive. The conservative regimen (rest, supportive care, transfusions, vaccines, intravenous chemotherapy, postural drainage and bronchoscopic aspiration) alone was carried out in 87 cases, although 9 were under observation for so short a time that they cannot be included. There were 23 deaths among the remaining 78 patients, 33 were known to be cured, 5 were discharged cured but without follow-up within the last year and 17 were improved at the time of discharge to their referring physicians. Thirty-seven patients were referred for some form of surgical care, and of these 18 have died of various causes and of the 19 surviving patients only 4 have survived procedures other than external drainage. The poor results obtained by procedures other than external drainage coincide with the experience of other investigators and justify their abandonment except when complicating conditions demand lobectomy or pneumonectomy. The authors agree that surgical intervention should be early if progress is not rapid and unmistakable but that every patient should first be given the advantage of a rigid conservative regimen for at least a brief period. The time limit varies for each patient, and the optimal time for the various therapeutic procedures can be set best by the cooperation of the internist, thoracic surgeon, roentgenologist and bronchologist at some sort of "chest conference."

Operative Treatment of Cardiospasm.—Gray and Skinner discuss the etiology of cardiospasm, the pathologic changes, symptoms and treatment. Among the more than 1,200 cases encountered at the Mayo Clinic only 7 required surgical intervention. The authors submit reports of the cases in which operation was performed. The operations were four manual

dilations of the cardia according to Mikulicz, one esophago-gastrostomy, one thoracocervical sympathectomy and one abdominal sympathectomy combined with manual dilation of the cardia. In the authors' opinion surgical procedures will at times be necessary for those few patients whose esophagus is obviously dilated, tortuous and lengthened, with angulation at the cardia and development of a reservoir below the level of its opening. Dilation of the cardia from above by some mechanical dilator is an extremely satisfactory method of conservative treatment in most cases of cardiospasm. Of 810 cases observed at the clinic up to 1933, 805 were treated conservatively, and complete relief was obtained in 71 per cent of 670 traced patients. A large proportion of the remainder were benefited; only 32 received no help. Nine died as a result of splitting of the esophagus. All but 1 of these deaths occurred prior to 1925, when a change in technic was instituted.

Kentucky Medical Journal, Bowling Green

38:565-610 (Dec.) 1940

- Fibrosarcoma of Ileum: Report of Case. H. Mahaffey, Louisville.—p. 567.
Pheochromocytoma of Adrenal with Paroxysmal Hypertension: Case Relieved by Surgery. J. E. Hamilton, Louisville.—p. 572.
Medical Horizons. N. B. Van Etten, New York.—p. 575.
Vitamins, Their Use in Children. T. J. Marshall, Paducah.—p. 579.
Some Practical Thoughts About the Ear. C. L. Woodbridge, Middleboro.—p. 582.
Some Behavior Problems in Infancy and Early Childhood. W. F. Lamb, Russellville.—p. 584.
Surgical Considerations of Gallbladder and Bile Ducts: Factors Influencing Mortality and Morbidity. A. W. Allen, Boston.—p. 588.
Applied Pathology of Paranasal Sinuses. W. A. Weldon, Glasgow.—p. 594.
Diagnosis of Acute Surgical Conditions of Abdomen in Children. E. W. Northcutt, Covington.—p. 597.
Squint, Its Etiology and Treatment. W. Snyder, Frankfort.—p. 598.
Treatment of Pneumonia. J. M. Kinsman, Louisville.—p. 600.

Military Surgeon, Washington, D. C.

87:497-590 (Dec.) 1940. Partial Index

- Our Medical Preparedness for Modern War. C. R. Reynolds.—p. 499.
Results in 152 Denervations of Adrenal Glands in Treatment of Neurocirculatory Asthenia. G. Crile.—p. 509.
Differential Diagnosis of Neurocirculatory Asthenia (Soldier's Heart). E. P. McCullagh.—p. 511.
New Devices for Reduction of Maxillary Fractures. C. M. Woodward.—p. 525.
Peculiarities of Certain Common Diseases in Panama. J. R. Darnall.—p. 531.
Applicability of Electroencephalogram (EEG) to Military Medical Problems. H. M. Serota.—p. 537.
A Substitute Darkfield. H. H. Parsons.—p. 540.
Dr. William Douglass: Survey of Medical Conditions (1752). J. M. Phalen.—p. 541.

Minnesota Medicine, St. Paul

23:825-898 (Dec.) 1940

- Indications for Excretory Urography. B. H. Nichols, Cleveland.—p. 825.
*Endocrine Disturbances in Relation to Skin Diseases. F. W. Lynch, St. Paul.—p. 829.
Maternal Mortality and Forceps Deliveries. F. A. La Breck, Eau Claire, Wis.—p. 834.
Care of Patients Preceding Gastric Operations. N. H. Baker,ergus Falls.—p. 839.
Preoperative Preparation of the Diabetic Patient. A. H. Beard, Minneapolis.—p. 841.
Preoperative Care in Surgery of Biliary Tract. E. M. Jones, St. Paul.—p. 844.
Diagnosis of Tumors of Breast. E. T. Bell, Minneapolis.—p. 847.
Treatment of Carcinoma of Breast. M. W. Alberts, St. Paul.—p. 848.
Primary Carcinoma of Bronchus. H. J. Moersch, Rochester, Minn.—p. 853.
Fracture of Elbow. M. H. Tibbetts, Duluth.—p. 856.

Endocrine Disturbances and Cutaneous Diseases.—Lynch points out that endocrine disturbances exert a powerful influence on the skin and that cutaneous changes afford considerable diagnostic aid in endocrinopathies. Analysis of the classic endocrine disturbances (hypothyroidism, hyperthyroidism, hypofunction of the adrenal cortex, hypopituitarism, hyperpituitarism and disturbed gonadal functions) shows that most of the cutaneous anatomic structures and functions are directly influenced by endocrine associations. That the character, growth and distribution of hair are more influenced by the endocrines than by any other factor may also be deduced by analysis of the

classic endocrinopathies. The texture of hair is controlled mostly by thyroid function, growth is chiefly subject to the pituitary gland, and its distribution is a result of gonadal activity. Recent work on pancreatic hormones suggests that cutaneous lipoidoses and perhaps psoriasis may be related to the endocrines. The association between allergy and endocrinopathy has possibilities that have not been explored. That some interrelationship is present cannot be doubted; hyperthyroidism is known to exaggerate allergic symptoms, and estrogenic activity apparently decreases allergic tendencies. There are many signs of endocrine activity in neurodermatoses; the lowered blood pressure, vascular dilatation or constriction and emotional changes are most significant. A lowered metabolic rate is further evidence of such association. Since hormones act on all tissues, endocrine influence on cutaneous diseases might be expected. Syphilis is one disease which is without doubt influenced by the endocrines. The difference in the course of syphilis in the sexes and the favorable influence of pregnancy are well established clinical observations. In contrast to the endocrine influence on systemic disease, an extensive systemic disease may influence the glands of internal secretion. Generalized exfoliative dermatitis exerts a general systemic influence, and in association with this disturbance a number of endocrine abnormalities have been demonstrated. These abnormalities might be the cause of the cutaneous involvement, but it appears more likely that they are the result of the extensive disturbance of cutaneous functions. Among the dermatoses influenced by endocrine activity are necrobiosis lipoidica diabetorum, acanthosis nigricans, hemochromatosis, hypertrichosis (and baldness a hereditary trait associated with some type of mild endocrine dystrophy), menstrual dermatoses, cutaneous changes at the menopause, hyperpigmentation (linea nigra), striae and chloasma of pregnancy, scleroderma, calcinosis, impetigo herpetiformis, livedo, acrocyanosis, erythema induratum and various forms of pernio. There is some evidence that acro-dynia is closely associated with adrenal cortical disturbance. The dermatologist needs little knowledge of endocrine therapy of the cutaneous disturbances associated with classic endocrinopathies, as his assistance should be chiefly diagnostic. Such therapy should be left to the endocrinologists at least until the indications, dosage and technic are developed, when it can be applied by all practitioners, as is now true with antisiphilitic agents.

Missouri State Medical Assn. Journal, St. Louis

38:1-36 (Jan.) 1941

- The Fibroid Uterus. E. D. Plass, Iowa City.—p. 1.
Diabetes: Advances in Treatment. C. M. MacBryde, St. Louis.—p. 3.
Treatment of Anxiety States. J. M. Sartin, Springfield.—p. 7.
Application of Gynecologic Endocrinology to General Practice. P. F. Fletcher, St. Louis.—p. 10.
Pseudotumors of Orbit (Inflammatory). A. N. Lemoine, Kansas City.—p. 15.
Type XXXIII Pneumococcus Pneumonia: Report of Five Cases. L. L. Terry, L. D. Thompson and J. C. Edwards, St. Louis.—p. 17.
Carcinoma of Sigmoid and Advantages of Devine Colostomy. G. W. Hogeboom, Springfield.—p. 20.
Relationship of Arterial Hypertension to Surgical Risk in Breast Cancer: Analysis of 446 Consecutive Radical Mastectomies. H. R. Senturia, St. Louis.—p. 22.

Nebraska State Medical Journal, Lincoln

25:429-460 (Dec.) 1940

- Present Day Concepts in Handling Gallbladder Disease. W. H. Cole, Chicago.—p. 429.
*Present Status of Electroencephalography and Some of Its Practical Applications. A. E. Bennett and P. T. Cash, Omaha.—p. 435.
Study of Small Bowel, with Special Reference to Avitaminosis. A. F. Tyler, Omaha.—p. 441.
Bilateral Retinoblastoma (Glioma): Preliminary Report of Case. W. H. Morrison, Omaha.—p. 445.

Electroencephalography.—Bennett and Cash point out that the electroencephalogram is capable of locating the site of a cortical lesion in from 80 to 90 per cent of cases. Subcortical tumors cannot be located directly, but they often can be inferred because of the electrical dysfunction produced in the cortex as in pituitary tumors, which usually produce abnormal signs in the frontal lobes. In cerebellar tumors the location may be inferred, but with difficulty. In a few instances with organic pathologic changes the electroencephalogram may be normal. Gliomas of the parietal lobes produce a decreased alpha frequency and slow pathologic or delta waves. Tumors of the frontal lobes do not usually affect the alpha rhythm. Neoplasms in themselves are electrically inactive, but by their

effect on the cortex they produce changes demonstrable electrically. Cerebral abscesses may be localized in the same manner as neoplasms. If localization is obscured by generalized increased intracranial pressure, this may be overcome by using hypertonic solutions, which are more effective than the release of pressure by ventricular tap. Less consistent but still definite changes in the normal rhythm, with the presence of abnormal waves, may be noticed in the presence of toxic encephalitis, epidemic encephalitis, paralysis agitans, presenile and senile dementia, multiple sclerosis and dementia paralytica. The electroencephalogram is extremely useful in localizing epileptogenic foci in patients showing no other localizing phenomena. This is particularly significant in view of the recent advances in the surgical treatment of epilepsy. Of practical significance is the comparative study during symptom free periods in order to evaluate the efficiency of treatment, thus guiding the clinician. The hereditary factor in epilepsy has received further confirmation by the electroencephalogram. In functional disorders (neuroses, behavior problem children, schizophrenia and manic-depressive insanity), the electroencephalogram has opened a new approach for etiologic and pathophysiologic study.

New England Journal of Medicine, Boston

223:959-1000 (Dec. 12) 1940

- *Relation of Pyelonephritis and Other Urinary Tract Infections to Arterial Hypertension. S. Weiss and F. Parker Jr., Boston.—p. 959.
*Open Air Sanatorium Care for Patients with Rheumatic Fever and Rheumatic Heart Disease: Preliminary Report. J. P. Hubbard and W. A. Griffin, Boston.—p. 968.
Treatment of Peptic Ulcer with Aluminum Hydroxide: Two Year Study. S. A. Wilkinson and P. D. Comanduras, Boston.—p. 972.
Reaction of Leukemic Patients to Sulfapyridine Administration: Preliminary Report. K. E. Livingston and Ruth D. Moore, Boston.—p. 975.
Use of Oxygen in Demonstrating Posterior Herniation of Intervertebral Disks. J. L. Poppen, Boston.—p. 978.
First Aid Treatment for Asphyxia. C. C. Lund, Boston.—p. 982.

Relation of Urinary Infections to Arterial Hypertension.—Weiss and Parker classify pyelonephritis into four groups: acute (pyelitis), chronic (active), healed and healed with recurrence. The main morphologic characteristics of each group are described. Two illustrative cases of the natural history of pyelonephritis and the relation of infections of the urinary tract to the development of arterial hypertension are discussed. The renal infection of the first patient began at the age of 6 months and persisted until her death at 15 years of age. Whereas local symptoms with pyuria dominated the clinical picture in early childhood, nephritis with arterial hypertension was the presenting syndrome during the last two years. The cause of death was uremia, at which time the renal infection still persisted. The case represents chronic (active) pyelonephritis. The kidneys at postmortem examination were unusually small but without congenital abnormalities. The authors believe that this type of kidney is caused by lack of normal growth due to chronic infection rather than to renal contraction. The late effects of pyelonephritis in adult life are presented by the second patient whose first attack developed during pregnancy. The left kidney, removed surgically, was small and probably congenitally hypoplastic. Whether the right kidney has any congenital malformation is not certain. During the twenty years this patient has been under study she has suffered from repeated attacks of acute infection, suggesting healed and recurrent pyelonephritis. The gradual onset of hypertension was clearly demonstrated. For the first seventeen years, symptoms referable to the urinary system and pyuria were the main features; the blood pressure was normal. Symptoms of severe hypertension with changes in the eyegrounds and angina pectoris developed during the last three years. Renal tuberculosis, infections of the renal pelvis, hydronephrosis and cystitis are usually not responsible for arterial hypertension. In children with low renal reserves of long standing caused by pyelonephritis disturbances of bone formation with deformities (renal rickets) may be present, but the characteristic changes differ from those of true rickets. Acute pyelonephritis (pyelitis) by itself is usually not responsible for toxemia of pregnancy. It has an indirect relation to toxemia and eclampsia so far as it predisposes to arterial hypertension and to a low renal reserve. Diffuse pyelonephritis in its chronic or healed stage should be considered as one form of nephritis. The clinical course of pyelonephritis varies. In most cases the

disease is benign and self limiting, but at times it becomes chronic, leading to arterial hypertension and to renal or cardiac insufficiency.

Sanatorium Care for Patients with Rheumatic Fever.—Hubbard and Griffin present the results of two years of open air treatment of rheumatic fever and heart disease. The idea began as an experiment in an attempt to determine whether a rheumatic child in a carefully controlled, open air environment can be kept free of respiratory infections and whether the infection itself responds favorably to such an environment. During the winter of 1938-1939, 20 children who had recently recovered from active rheumatic fever were sent to the sanatorium. Some had respiratory infections at the time of admission. They remained as a closed colony during the winter and spring months. Only the child's parents were allowed to visit once a week. The parents were required to wear masks, and no one with a cold, sore throat or other infection was admitted to the building. Education of the children was continued, and a full time occupational therapist was available to keep them happy and busy when they were not at their school work. The children slept outdoors, even in the severest weather, and were kept in the open air as much as possible during the day. Throughout the winter all the children were free from respiratory infections and recurrences of rheumatic fever. During the summer of 1939, 15 children were discharged, the rest being kept for further care. Some of the discharged children since returning home from the sanatorium have had infections of the respiratory tract and other minor ailments, but none have had recurrences of rheumatic fever or evidence of increased heart disease. During the following winter only children with active rheumatic infection were placed. The policy of maintaining a closed colony was abandoned, and children were admitted as beds became available. The only restrictions were that the disease should be well established and that the children should be between 5 and 12 years of age and free from chorea and heart failure. During the second year 28 children were admitted. When they were free from all evidence of active infection a gradual increase in activity for two months was allowed and then they were permitted full activity. Instead of being sent home at this time they were kept for a further few months, during which it was hoped that any latent rheumatic infection would be overcome and a state of vigorous health attained, so as to enable them to withstand the rigors of their home environment, which was probably poor at best. The results were as satisfactory as those during the first year. The children remained free from infections of the respiratory tract except for one or two minor head colds. Rheumatic infection did not recur in any instance. During the second year, throat and air cultures were taken regularly. A considerable number of hemolytic streptococci were found in the throat cultures; the typing of these is not finished. The air cultures give bacteriologic evidence in support of the value of the open air environment. With freely circulating air that is rapidly diluted with the outer air there is relative freedom from bacterial contamination in comparison with the usual hospital wards. Bacterial determinations made during the winter, spring and summer compared favorably with similar counts obtained in a carefully supervised, air-conditioned, infection-free premature infant nursery and in infant cubicles protected with ultraviolet radiation. Hemolytic streptococci and other pathogenic bacteria were found in air samples from hospital wards, whereas only staphylococci, molds and a variety of nonpathogenic organisms were obtained at the sanatorium. The authors draw no conclusions as the time has been short and the number of cases limited, but they believe that the treatment is rational and economically sound and deserves further trial.

Southwestern Medicine, El Paso, Texas

21:393-422 (Dec.) 1940

- Postgraduate Medical Education. O. Egbert, El Paso, Texas.—p. 393.
Partial Gastrectomy in Certain Cases of Duodenal Ulcer. V. C. Hunt, Los Angeles.—p. 394.
Spinal Cord Tumors. P. M. Bassell and B. N. Blanton, Temple, Texas.—p. 399.
Newer Aspects of Low Back Pain. L. W. Breck, El Paso, Texas.—p. 401.
The Problem of Tuberculosis in New Mexico. W. I. Werner, Albuquerque, N. M.—p. 404.
Report of Severe Reaction Following Use of "Monolate" as Sclerosing Solution. H. D. Cozswell and C. A. Thomas, Tucson, Ariz.—p. 408.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Glasgow Medical Journal

16:147-198 (Nov.) 1940

- *Calcium Gluconate in Cardiac Failure: Clinical Pharmacology and Therapeutics. A. S. Rogen.—p. 147.
Contrast in Methods of Vaccination: By Intradermal Injection and by Linear Scratch. T. McEwan.—p. 163.
Fatal Agranulocytosis After Sulfapyridine Therapy. W. K. Anderson, S. Horowitz and T. W. Palmer.—p. 172.

Calcium Gluconate in Cardiac Failure.—Rogen determined by auscultation the heart rate of 26 patients with varying degrees of cardiac failure before and after the intravenous administration of 10 cc. of a 10 per cent solution of calcium gluconate. Preliminary excitement was minimized by accustoming the patient to the routine of injection. As a control, intravenous sodium chloride was given to some patients but without significant alteration of heart rate. Twenty of the 26 patients reacted to the calcium gluconate by a slowing of the heart rate of from six to seventy-eight beats per minute and in 6 no change occurred. The time of maximal slowing varied from five minutes to more than twenty-four hours. Five of the patients who experienced no appreciable change in heart rate had auricular fibrillation. The greatest degree of slowing among half the patients with regular rhythm did not occur within ten minutes of the injection, whereas it did among the patients with auricular fibrillation. The fall in heart rate produced by calcium depends on the original rate. The relationship between percentage of fall and original rate in patients with regular rhythm and the absence of this when there are beats of ectopic origin as in auricular fibrillation suggest that one action of calcium is to stimulate the vagus mechanism. The author also studied the effect of atropinization on the action of calcium of 15 patients with cardiac failure and regular heart rhythm. Calcium failed to have any effect on 10 patients during atropinization. Slowing was noted in the remaining 5. It is assumed that in the first group the vagal paralysis produced by atropine was responsible for the absence of calcium bradycardia, suggesting that calcium exerts its effect through the vagal system. The failure of atropine to abolish completely the slowing action of calcium of the 5 patients was probably due to the fact that vagal paralysis was incomplete. The effect of calcium gluconate on the electrocardiograms of 12 patients was studied, and the results show that calcium may affect the heart indirectly through the vagal system and directly through the myocardium. Evidence of sinus slowing, the greater effectiveness of calcium in reducing the heart rate in regular rhythm and the abolition of the bradycardia effect by atropine suggest a vagal action. Increase in the amplitude of the T wave and a greater tendency to coupling and lengthening of diastole in the electrocardiograms indicate some direct action on the heart muscle. The fact that these observations are not so frequent as the sinus slowing suggests that as a rule larger doses of calcium are required to produce the myocardial effect than to stimulate the vagus control. The blood pressures of 21 patients (seventy-two determinations) were determined half an hour before and at intervals after the injection of calcium gluconate. On thirty-six occasions there was an increase in systolic blood pressure varying from 4 to 20 mm. of mercury and on thirty-six a decrease of from 4 to 24 mm. The pulse pressure was increased on eighteen occasions, decreased on eleven and unaltered on the remainder. Neither the heart rate nor the rhythm had any effect on the direction of the systolic or pulse pressure changes. The venous pressure of 18 patients was estimated, and in 11 the injection of calcium gluconate was followed by a slight fall and in 7 there was no change. The effect of the calcium on the respiration of 6 patients was studied by means of a stethograph; in 5 the rate was slightly reduced, in 3 the irregularity was diminished and in 3 the amplitude decreased. Calcium gluconate therapy of these patients lowered the viscosity of the blood and, it may be assumed, lessened the work of the heart and to that extent led to improvement in circulation. Calcium gluconate has little immediate effect on the urinary output, but it greatly enhances the diuretic action of the digitalis glycosides. Fourteen of the 41 patients given systematic calcium therapy have experienced definite bene-

fit. Many of the 41 patients had failed to respond to other forms of treatment, including digitalis. Improvement was considered to have occurred only when there was reduction in pulse rate, a diminution of edema, a reduction in the rate of breathing or a marked lessening of cyanosis, together with subjective improvement of at least three days.

Lancet, London

2:707-736 (Dec. 7) 1940

*Chemotherapy of Abdominal Actinomycosis. G. C. Dorling and N. L. Eckhoff.—p. 707.

*Oral Anterior Pituitary Extract (Collip) in Diabetes. R. D. Lawrence and F. G. Young.—p. 709.

*Pancreotropic Factor of Anterior Pituitary Lobe. H. P. Marks and F. G. Young.—p. 710.

Treatment of Irreparable Rupture of the Urethra. A. Jacobs.—p. 712.
Prevention of Acute Adhesive Obstruction. A. J. C. Latchmore.—p. 713.
Blindness Following Hematemesis. C. H. Bamford and H. Barber.—p. 715.

Chemotherapy of Abdominal Actinomycosis.—According to Dorling and Eckhoff, a patient with abdominal actinomycosis usually is admitted to the hospital with acute appendicitis, often with peritonitis, and an operation is performed for removal of the appendix and drainage. Discharge continues from the incision for weeks and months, and not infrequently secondary operations have to be performed for collections of pus in the pelvis, subphrenic spaces or other parts of the abdominal cavity. A typical actinomycotic abscess often develops in the liver, and when this happens death is almost certain. At some time during this period actinomycosis may be recognized from an examination of the discharge. Many methods of treatment have been tried, but no specific has been discovered, and this has led to a further search for a drug that would be of value. Several investigators having employed sulfanilamide preparations, the authors decided to try this form of chemotherapy not without some skepticism. In view of the striking benefit in 1 case, they have since instituted it whenever actinomycosis has been suspected. They describe 5 cases of abdominal actinomycosis treated with sulfanilamide, sulfapyridine or both. Although all were severe infections there were four complete recoveries and one death. In 1 case, in which high voltage roentgen therapy also had been used, a later operation showed that all evidence of disease had disappeared. The authors conclude that chemotherapy should be tried early in all cases of suspected abdominal actinomycosis. Two or three courses of sulfapyridine, each lasting a week and with a week between, are usually needed.

Oral Anterior Pituitary Extract in Diabetes.—Lawrence and Young point out that Collip claims to have observed an important "antidiabetogenic" effect produced by a primary alcoholic extract of anterior pituitary tissue administered by mouth. The authors attempted to confirm Collip's observations on diabetic human beings and on dogs made permanently diabetic by the daily injection of anterior pituitary extract for a short period. No evidence was obtained to support Collip's claim that the oral administration of the primary alcoholic extract of pituitary tissue exerts a profound antidiabetogenic effect. Collip suggested that this extract produces its effect through a pancreotropic action on the islets of Langerhans.

Pancreotropic Factor of Anterior Pituitary Lobe.—Marks and Young report investigations on the pancreotropic activity of different anterior pituitary preparations, undertaken to verify Collip's suggestion that the anterior pituitary tissue exerts its antidiabetogenic effect by virtue of pancreotropic action. The ability of such preparations to induce a significant rise in the insulin content of the pancreas of a male Wistar rat treated daily with extract for two weeks was used by the authors as an index of pancreotropic activity. The pancreotropic activity of sheep pituitary crude extract was found to be about half that of ox pituitary extract, while horse pituitary extract was found to be inactive under comparable conditions. Although a preparation of prolactin possessed a high degree of pancreotropic activity, considerations are advanced for believing that the pancreotropic factor (which is probably not a hormone) is not identical with prolactin or with the gonadotropic, thyrotropic or glycotropic substances. Treatment with testosterone, unlike treatment with estrogens, does not raise the insulin content of the pancreas of the male rat, and the

pancreotropic action of pituitary extract appears not to be mediated by the male gonads. Collip's primary neutral alcoholic extract of pituitary tissue was found not to be significantly pancreotropic when administered to rats either by subcutaneous injections or by mouth.

Presse Médicale, Paris

48:953-968 (Nov. 27-30) 1940

Reactivation of Latent Foci of Tuberculosis; Endogenous and Exogenous Reinfection. E. Sergent.—p. 953.

*Sterilization of Tuberculous Lesions and Extinction of Sensitivity to Tuberculin in Man Based on Experimental Considerations. A. Sænz.—p. 955.

Relation of Hypertrophy of Prostate to Senescence. P. Thévenard.—p. 957.

Sterilization of Tuberculous Lesions.—Sænz applies some conclusions drawn from experiments with guinea pigs, involving sterilization of latent tuberculous lesions, desensitization and reappearance of sensitization after reinfection, to man. The sterilization and extinction of sensitivity to tuberculin here discussed, never observable when guinea pigs are inoculated with even minimal quantities of virulent tubercle bacilli, concern primary lesions, communicated to guinea pigs by inoculation with greatly attenuated vaccines, such as the BCG. Sterilization varies in accordance with the original concentration of vaccine used. The author points out (1) that great individual differences observed in the time requirement for securing complete negative tuberculin reactions in the guinea pig are encountered also in man and (2) that in guinea pigs a long interval of time occurs between sterilization of primary inoculated lesions and the disappearance of sensitivity. The fact that in the animal sterilization of the lesions may be observed after three to four months, whereas tuberculin positive reactions may continue for some ten to twelve months and longer justifies the assumption that other factors besides living tubercle bacilli may be at work, namely modification of the colloidal setup of the protoplasm of certain cells, which many persist for a long time. Parallel conditions may reasonably be inferred to exist in man. Sterilization is complete in man when calcification has occurred, but tuberculin reactions continue positive for a much longer time. The author was also able to confirm the guinea pig experiments of other investigators who found that induced reinfection after spontaneous desensitization was accompanied with a marked acceleration in the recurrence of sensitivity. This condition seems also to occur in man. Hence there persists, though the skin is completely desensitized, a certain degree of allergy or an aptitude to react differently, which needs to be kept in mind when one is formulating conclusions on sensitivity and desensitization.

Schweizerische medizinische Wochenschrift, Basel

70:1093-1116 (Nov. 16) 1940

*Spondylolisthesis. E. Burckhardt.—p. 1093.

Buerger's Disease. K. Scheyer.—p. 1102.

Pernicious Anemia and Hypothyroidism. A. Vännotti.—p. 1106.

Influence of Short Waves on Metamorphosis of Tadpoles. F. Ludwig and J. von Ries.—p. 1108.

Observations on Action of Caffeine-Free Coffee and Significance of Aromatic Substances as well as Discussion of Stimulating and Reviving Effect. W. Kretschmer.—p. 1110.

Spondylolisthesis.—According to Burckhardt, spondylolisthesis and spondylolysis interarticularis (Neugebauer) are essentially the same disease process in different stages of development. The beginning stage of spondylolysis, that is the stage before displacement of the vertebral body, is designated as spondylolisthesis imminens. The elicitation of the clinical symptoms can be spontaneous, but in many cases a trauma is held responsible, particularly when it caused a sudden excessive tension of the back muscles. In two thirds of the 63 cases reviewed here no accident could be demonstrated. The first clinical signs are often slight. Generally the patient complains of backache; he has a feeling of unsteadiness over the sacrum and has the sensation of falling forward and he reacts against this by lifting the pelvis. The pains radiate into the legs occasionally during the initial stage, which is explained by the close relation of the intervertebral foramen (nerve root) to the cleft of the vertebral arch (interarticular portion). Roentgenographic examination is indispensable for a reliable diagnosis. The interpretation of the

roentgenogram is easy in case of manifest spondylolisthesis, particularly if the exposure was lateral. However, the imminent spondylolisthesis is often difficult to recognize; the lateral exposure alone may be inadequate, but the anteroposterior exposure reveals the cleft more clearly, particularly if in the presence of a kyphotic lumbar vertebral column the projection is made from an anterior-inferior toward a posterior-superior direction. Oblique exposures should be added in all doubtful cases. Of the 63 cases of spondylolisthesis (37 men, 26 women), 46 involved the fifth, 11 the fourth and 2 the third lumbar vertebrae. In 3 cases the fifth and fourth and in 1 the third and second lumbar vertebrae were involved. An olithetic fifth lumbar vertebra generally shows a greater displacement than does the fourth or another lumbar vertebra. The different degrees of displacement are found in all age groups. The lumbosacral angle (that is, the angle opening posteriorly between the axes of the fifth lumbar and first sacral vertebrae) widens proportionately to the degree of displacement. This angle measures 140 degrees under normal conditions and 160 degrees in spondylolisthesis. The angle formed by the inferior articular process and the root of the arch, which is normally 115 degrees, is likewise enlarged in spondylolisthesis. This enlarged angle of the arch is not specific for spondylolisthesis. Junghanns detected this enlargement also in pseudospondylolisthesis. This angle measures 126 degrees in imminent spondylolisthesis and it contributes to the elongation of the arch. It seems to hinder the reposition. The intervertebral disk always shows secondary degeneration in spondylolisthesis, that is, the loosening of the interarticular portion of the vertebral arch is primary. However, not until the intervertebral disk starts to yield does the sliding become manifest. The author treats spondylolisthesis in adolescents, in whom recent gliding justifies it, first by a reposition of the sliding vertebra. If possible, he subjects all patients with spondylolisthesis, under local anesthesia, to the Albec-de Quervain operation with paraspinal double tibial graft. After this the patient must avoid great physical exertion for from six to twelve months and he must be fitted with a lumbar support.

Hospital, Rio de Janeiro

18:893-1082 (Dec.) 1940. Partial Index

*Hypovitaminosis B₁ in Cardiovascular Disease. R. de Siqueira and R. Segadas.—p. 943.
Endocrine and Sympathetic Dystonia. G. Bandeira.—p. 1039.

Hypovitaminosis B₁ in Cardiovascular Disease.—Siqueira and Segadas point to the frequency of heart disease as a result of lack of vitamin B₁. The deficiency brings about general nutritional metabolic dysfunction in which the myocardium is involved. The authors review the literature and report 8 cases of their own and several from the literature. They found that chronic alcoholism, pregnancy, diabetes, hyperthyroidism, prolonged infection, malnutrition and cachexia, chronic disease of the digestive tract and latent cardiac insufficiency are the underlying or determining causes of hypovitaminosis B₁ and of the cardiac complications. The early symptoms, palpitation, a feeling of oppression in the chest and of precordial distress, dyspnea on exertion and irregularities in the heart action are, as a rule, benign and regress on administration of vitamin B₁. The changes in the size of the heart and cardiac insufficiency appear late in the course of the condition, are more or less grave and may become permanent. The electrocardiograms exhibit abnormalities of the ventricular complex, with reduction of the amplitude of the R or S waves, lack of level of the ST segment and deformation or inversion of the T wave, which may be transient or permanent in accordance with the acuteness of the myocardial lesion. The author concludes that in all cases of heart disease in which hypovitaminosis B₁ is suspected it is advisable to clarify the diagnosis by the therapeutic test of administering vitamin B₁. The treatment of the disease consists in intramuscular injections of vitamin B₁ in daily doses of 0.01 or 0.02 Gm. for the first three weeks, after which the vitamin is given by mouth. Rest and a normal diet with abundance of fruits and vegetables are indicated. The condition responsible for hypovitaminosis should be treated in all cases. Cardiac tonics and diuretics are indispensable in the presence of cardiac insufficiency.

Revista Médica Latino-Americana, Buenos Aires

26:1-130 (Oct.) 1940. Partial Index

*Pharmacologic Action of Potassium, Calcium and Magnesium Ions on Respiratory Centers. B. L. Velázquez.—p. 1.

Action of Potassium, Calcium and Magnesium Ions on Respiratory Centers.—Velázquez found no reports in the literature on the action on the respiratory centers of ions when injected by the suboccipital route, or on their clinical application in the treatment of respiratory paralysis of cerebral origin. He induced a respiratory paralysis in dogs by intravenous injection of a mixture of morphine and chloral hydrate. Isotonic solutions of drugs capable of ionic dissociation were injected suboccipitally at a temperature of 38 C. after removal of an equal amount of cerebrospinal fluid. Potassium chloride in a dose of 0.02 Gm. had the effect of stimulating and regulating respiration and increasing the blood pressure. Calcium chloride, 0.05 Gm., caused respiratory paralysis without any alteration in the blood pressure. Magnesium in a dose of 0.05 Gm. also caused respiratory paralysis. Potassium chloride when administered in the mentioned dose during the effect of calcium chloride caused paralysis and lowered the blood pressure. When the drug was administered after magnesium chloride it stimulated respiration and caused a slight increase in the blood pressure. Repeated experiments gave constant results. The author concludes that potassium chloride in doses of 0.02 Gm. administered by suboccipital injection is the most efficacious drug for the stimulation of the respiratory centers and for regulation of lowered blood pressure caused by disturbances of the respiratory centers. The results suggest clinical application of the drug in respiratory paralysis due to poisoning of the nervous centers, respiratory syncope in anesthesia and paralysis from other causes. The injections should be given by the suboccipital route.

Münchener medizinische Wochenschrift, Munich

87:1045-1076 (Sept. 27) 1940

Circulatory Function Tests in Soldiers, with Special Reference to Work Test Electrocardiogram. P. Laurentius and F. Klopffleisch.—p. 1045.
*Clinical Aspects and Therapy of Lymphatic Leukemia. R. Stöger.—p. 1047.

Active Therapy of Febrile Abortion and Contribution to Problem of Secondary Sterility. H. Winkler.—p. 1052.
Bromine Preparation as Efficient Substitute for Iodine. H. Städtler.—p. 1054.

Indications for Surgical Therapy in Diseases of Digestive Organs and Peritoneum. H. Junghanns.—p. 1055.

Lymphatic Leukemia.—Stöger reviews observations on 53 cases of lymphatic leukemia. The fact that 39 of the 53 patients were men indicates that the disease is much more frequent in men than in women. The age of greatest frequency was the sixth and seventh decades, which contradicts reports in the literature according to which the disease is more frequent in younger age groups (from 20 to 40 or 30 to 39). The symptoms which brought the patients to the physician varied considerably, but swellings of the lymph nodes and the resulting pressure pains were most frequent. Increasing pallor, weakness, hemorrhages and raised temperatures were other early symptoms. In 5 cases cutaneous symptoms were observed. The skin lesions vary greatly; they may assume the form of prurigo nodularis, erythrodermia or may resemble mycosis fungoides. The blood picture or the result of sternal puncture is the decisive factor in the diagnosis of such cutaneous lesions. Lymphatic leukemia was discovered accidentally in the course of a blood analysis of 4 patients who were free from complaints although a splenic tumor was already present. Swelling of the lymph nodes in the cervical, the inguinal, the axillary and perhaps the mediastinal regions, splenic tumor and enlargement of the liver are the most striking aspects of lymphatic leukemia. Hyperplasia of Waldeyer's tonsillar ring, although not pronounced in old patients, was always present in young patients. The greatly enlarged tonsils, which are characterized by a peculiar glossiness and may exhibit submucous hemorrhages, unfortunately have been extomized at times, although tonsillectomy is not only useless but even dangerous. This justifies the demand for a thorough internistic examination and a careful blood analysis previous to a tonsillectomy, particularly in the presence of hypertrophic palatine tonsils. Gastrointestinal or

neurologic symptoms were not observed. The genital organs may become involved and priapism may result. The temperature was alternately subfebrile and normal in 35 of the 53 patients, 6 patients had septic fever curves and the temperature of 12 patients was normal. Metabolism tests usually disclosed a noticeable increase in the basal metabolic rate. Examination of the urine almost always disclosed an increased elimination of urobilinogen. The blood picture is of greatest importance. The increase in leukocytes is usually considerable. The red blood picture is often characterized by a slowly progressing anemia which the author ascribes to three causes: (1) hemolysis, which is proved by the increased elimination of urobilinogen and by heightened bilirubin content of the serum, (2) displacement of red marrow by leukemic infiltration and (3) unknown toxins. The prognosis of lymphatic leukemia is unfavorable. According to the author's observations the disease lasts from two to five years, but death is usually the result of intercurrent diseases. Dietetic treatment and the administration of vitamin C exerted no influence in the reported cases. The improvement after fever therapy was of short duration. Blood transfusions proved valuable in the cases in which the anemia predominated. Roentgen therapy may improve the symptomatic complaints, but it should be employed only in carefully selected cases. It should be postponed as long as possible and should never be tried in cases in which there are less than 4,000 granulocytes. The improvement in the general condition should be the chief aim of the treatment, and arsenic preparations have proved effective in this respect. Heliotherapy in the form of sun baths has produced excellent results in early cases.

Medizinische Welt, Berlin

14:445-472 (May 4) 1940

Gunshot Lesions of Spinal Cord and Their Treatment. H. Peiper.—p. 445.

*Causal Therapy in Angina Pectoris. M. Hochrein.—p. 449.

Modifications of Electrocardiogram and of Activity of Heart After Calcium Injections. J. Kupas.—p. 453.

Causal Therapy in Angina Pectoris.—Hochrein discusses the pathogenesis and therapeutic management of angina pectoris. Nervous disturbances as well as coronary insufficiency may characterize the syndrome. The therapy must therefore be based on the observations in each case. Coronary insufficiency seems to constitute the inciting cause. The clinical picture, however, is determined by the tonus of the autonomic nervous system and the stimulus threshold of the sensory nervous system. Anginal pain is only a symptom and not always present where coronary insufficiency is encountered. Forty per cent of the patients with coronary insufficiency and 15 per cent with coronary sclerosis were free from pain. In 163 cases, gastric symptoms occurred eighty-nine times, and obesity was present thirty-four times, both conditions predominating at the age level of from 40 to 60 years. Focal infections occurred twenty-two times. In attacking individual conditions with an individualized regimen the author was able to cure angina pectoris in granuloma affecting the teeth by care of the teeth; angina pectoris due to rectal carcinoma with secondary gastric involvement by surgical intervention; angina pectoris, ultimately traceable to a hiatus hernia and anacid gastritis, by a change in the manner of living, diaphragmatic exercises and treatment for gastritis; esophageal spasms by a dietary regimen and anesthesia tablets, and a vagus neurosis, induced by athletic inactivity, by resumption of sports activities. Coronary insufficiency was combated directly by reducing cardiac strain to a minimum and by stimulating the blood circulation of the heart. This was effected by combating intestinal fermentation and constipation and by stimulating portal circulation. Caffeine, barbituric acids, carbonic acid inhalations and short wave irradiation were variously employed. (The use of nitrites and epinephrine is discouraged.) Mental therapy is regarded as an essential part of the therapeutic program. Most cases of angina pectoris can be relieved. Causal therapy not only assuages pain but prevents the possible evolution of an acute cardiac weakness, such as myocardial infarction and instant death from heart failure. Angina pectoris in obese persons was often permanently cured by simple attack on intestinal fermentation and excess weight.

Zeitschrift für Tuberkulose, Leipzig

85:65-192 (Sept.) 1940. Partial Index

*Residual Cavities After Thoracoplasty and Their Treatment by Means of Suction Drainage. A. Schuberth.—p. 87.

Microröntgenographic Method of Abreu. H. Grass.—p. 94.

*Problem of Primary Tuberculous Infection in Young Adults. H. Gerberding.—p. 101.

Suction Drainage of Residual Cavities.—Schuberth points out that, in spite of all efforts to avoid residual cavities after thoracoplasty, there remains a certain number which even additional plastic interventions do not affect. The author sees the cause for this in the tendency of cavities to gravitate toward the so-called dead angle. Another hindrance to the shrinkage is the unfavorable air pressure conditions in the cavity. The internal air pressure is dependent on the discharging bronchus, the patency of which may be modified in the course of the thoracoplasty; the bronchus may be bent or displaced, and this may have a favorable or an unfavorable effect, depending on the nature of the case. In unfavorable cases, inflation may result from the valvular action of the discharging bronchus. The suction drainage produces a negative pressure and thus favors shrinkage and, at the same time, it removes the harmful waste products from the cavity. The method consists in introducing into the cavity a rubber catheter through the thoracic wall and in suctioning off the contents. Of four residual cavities two shrank almost completely and the sputum as well as the discharge from the catheter was free from bacilli. In another case in which the residual cavity had existed for five years the cavity shrank to one half its former size and the sputum is now free from bacilli. In the fourth case the suction was begun only recently, but a considerable shrinkage has already taken place. The results are sufficiently favorable to recommend the method for all residual cavities which show no tendency to disappear after thoracoplasty.

Primary Tuberculous Infection in Young Adults.

According to Gerberding only 50 per cent of those who leave school have been infected with tuberculosis. A large number become infected during adolescence at the time of entering an occupation. The course of the primary infection depends chiefly on the natural nonspecific resistance which develops among a population by selection of the resistant. The epidemiologic conditions prevailing in Germany at present usually exert a favorable effect on the primary infection in adolescents; as a rule, it remains latent. The morbidity of those who have a negative tuberculin test is lower in Germany than in the more northerly located European countries. Nevertheless, severe and even fatal first infections occur in adolescents and the question is raised whether some severe cases of tuberculosis in adolescents might not be due to the fact that the primary infection took place only shortly before. In addition to the nonspecific resistance, the age at which the first infection is acquired is important. The instability of the endocrine-sympathetic system at puberty often exerts an unfavorable effect. Although it is no longer generally accepted that the healed primary tuberculous focus causes a specific immunity, the author is inclined to believe that the healed primary focus provides some protection against small, occasional new infections and, on the other hand, is maintained and renewed by such infections. The tendency to exacerbation during the puberal age makes it inadvisable to let persons of the ages between 15 and 22 work in tuberculous surroundings. If young persons with negative tuberculin reactions are at all permitted to work in tuberculous surroundings, they should be kept under observation and should be tuberculin tested from time to time. Serial tuberculin tests should be made not only on school children but also on young adults. Those who have negative tuberculin tests should be reexamined at definite intervals until a specific allergy is detected. Such serial examinations would have great prophylactic value: 1. By learning place and time of infection the source of infection could be traced. 2. The tuberculosis would be detected and cured during the earliest stage before organic destruction has taken place. 3. The epidemiologic conditions could be better understood if the time of the spread of infection was known. 4. It might be possible to solve the question of whether phthisis develops more often from primary and secondary tuberculosis in which cure did not take place, or from new infection.

Book Notices

Physiotherapy in Medical Practice. By Hugh Morris, M.D., D.M.R.E., Radiologist, Manchester Corporation Hospital Services, Manchester. Cloth. Price, \$4.50. Pp. 276, with 102 illustrations. Baltimore: William Wood & Company, 1939.

The frequency with which monographs on physical therapy are offered to the medical and allied professions in England perhaps indicates that interest in its procedures has reached the broad level of the average practitioner. In the absence of official information from its national body this is now supplied by those whose views are largely drawn from personal experience and past empirical practices. While this should not be interpreted as derogatory to efforts and beliefs presented in such publications, they often lack that indirect stamp of approval insisted on by scientific bodies and demanded by modern physicians schooled in the critical interpretation of physical and speculative data. In the main this book follows in outline volumes which have been published in the past both here and abroad and often recapitulates the early horse and buggy practices with virtually the same nuances and reasons found in the writings of such departed pioneers as Sir Lewis Jones, Massey and Snow. The value of the present text lies in the fact that it presents in broad sketches the elementary principles of electrotherapy as well as the conventional use of light for clinical purposes in a diction for easy consumption but questionable as guidance for the inexperienced. By unintentioned innuendo it leaves an impression that one has but to peruse such somewhat generalized exposition of the physical nature and clinical application of at least twelve variable and important agents and innumerable but inadequately described technics to be able to apply them with precision and success. At best it is felt that the work provides a lucid but rather skeletalized exposition of the component parts of a major section of physical therapy. It is rich in illustrative material but offers no course for collateral reading in the form of references or bibliography, so that one is entirely dependent on the author's personal views and must in part rely on the uncertain guidance of pen and ink drawings or halftones that are easy on the eye but confusing to the uninitiated. The work, however, is not without merit as introductory reading for students under supervision and could well be utilized to a certain extent for undergraduate instruction.

Diathermy: Short Wave Therapy, Inductothermy, Epithermy. By William Beaumont, M.R.C.S., L.R.C.P., Physician-in-Charge Physiotherapy Department, Westminster Hospital, London. Cloth. Price, 10s. 6d. Pp. 303, with 106 illustrations. London: H. K. Lewis & Co., Ltd., 1939.

This small volume attempts to evaluate the physical and clinical action of high frequency currents embraced under the major caption of diathermy. Its purpose is to present the fundamental principles in such an elementary fashion as to render them comprehensible to that large group of practitioners interested in but unfamiliar with its therapeutic possibilities. Unfortunately, in attempting to present a total picture within what might be termed a constricted framework the author succumbed to certain faults broadly attributable to imperfect balance of his literary material and enthusiasms that lack the basis of objective experience. In the space of ten chapters Beaumont devotes nearly 80 per cent of his exposition to the elaboration of old data associated with that diminishing practice called conventional diathermy and the remainder to a sketchy evaluation of the most recent innovations in short wave diathermy and its therapeutic modulations. Apart from the fact that short wave diathermy has been proved technically superior for the deep heating of tissues, its newness and greater portent should have been the impulse to transmit all nontechnical information pertaining to its physiologic and clinical nature in that detail lavished by the author on a vanishing practice. Accordingly one may deduce that this work is largely made up of perhaps unintentioned padding that describes and evaluates a fast receding practice and, for purposes of enlightening the inexperienced, resorts to archaic illustrations which depict by pen sketches certain technics that neither obey the laws of gravity nor adequately stress those of physiology. The author pays homage to the untimely passing of his distinguished colleague Elkin Percy Cumberbatch,

to whom he dedicates his book. This grandiose gesture is supported by all who have been fortunate recently to read and appreciate the fact that this deceased pioneer wrote one of the most understanding of books on diathermy. The two chapters devoted to short wave diathermy and to electromagnetic induced fields offer little that has not already been expatiated on more clearly, detailedly and informatively both here and abroad. To Beaumont, so-called inductothermy is the alpha and omega of short wave therapy, an opinion not supported by fact.

Congenital Syphilis. By Charles C. Dennie, B.S., M.D., Professor of Dermatology, University of Kansas Medical School, Kansas City, Kansas, and Sidney F. Pakula, B.S., M.D., Visiting Pediatrician to Children's Mercy Hospital, Kansas City General Hospital, Alfred Benjamin Clinic, and Menorah Hospital, Kansas City, Missouri. Cloth. Price, \$8. Pp. 596, with 133 illustrations. Philadelphia: Lea & Febiger, 1940.

There is a need for a competent modern monograph on congenital syphilis. The authoritative presentation of Jeans and Cooke is now 10 years old, therefore largely outdated, and is moreover buried in a System of Clinical Pediatrics where it is available to relatively few readers. Dennie and Pakula have attempted to fill this need, but unfortunately without conspicuous success. The cooperation of specialists is required to combat congenital syphilis successfully. The prospective mother and the diseased as well as the apparently healthy child must all be considered before the picture is complete. True these phases are considered and there is a presentation of the management of syphilis in pregnancy. If congenital syphilis is ever to be eradicated this can be done only by the recognition of syphilis early in pregnancy and by vigorous antisyphilitic treatment throughout. The authors conclude that complications actually do not occur with the same frequency with which they appear in syphilis uncomplicated by pregnancy. Several chapters are devoted to the early and late manifestations of the disease as they affect various organs. The description of the ocular changes is good. Much of the volume is devoted to therapy in which indications for treatment, choice of drugs and the technic of syringe administration are described. Various types of pyrotherapy are discussed. The book is generously supplied with splendid clinical photographs and roentgenograms which illustrate various stigmas and malformations of congenital syphilis. The text is based on the large clinical experience of the senior author and on the literature. Unfortunately the material is not well organized. In many sections the emphasis seems to be on adult acquired rather than on congenital syphilis. Portions of the text are carelessly written and proof read, with many improper usages of words (e. g. "gravity" for "gravidity") and misspelling of proper names. Recent important contributions to the literature are often omitted from discussion, especially in the disputed field of the roentgenologic diagnosis of congenitally syphilitic bone lesions. Obviously a revision of the book which would take into account these criticisms would be an improvement.

Text-Book of Ophthalmology. By Sir W. Stewart Duke-Elder, M.A., D.Sc., M.D., Surgeon Oculist to H. M. The King. Vol. III: Diseases of the Inner Eye. Cloth. Price, \$18.50. Pp. 2097-3470, with 1,140 illustrations. St. Louis: C. V. Mosby Company, 1941.

The third volume of this momentous textbook, which really should be designated an encyclopedia, deals with diseases of the inner eye. The manuscript was completed on Jan. 1, 1940 and the printing was scheduled to be finished by April, but the material, which was bound in this country, did not arrive until September. Consider that the author is the chief consulting ophthalmic surgeon to the British army and completed the volume under the handicaps imposed by that work, that the printing was done under the bombing of London and that the material had to be transported across the submarine infested Atlantic.

This volume is divided into seven chapters, which deal respectively with the uveal tract, the retina, the optic nerve, the lens, the vitreous body, glaucoma and hypotony, and intraocular parasites. The book is large and one hundred and sixty-four of the illustrations are in color. The printing and publishing companies responsible for the work have produced a volume of which they well may be proud in every respect. Typographic errors are conspicuous by their absence. The illustrations are uniformly excellent and clear cut, and even photomicrographs

of high magnification are so precisely reproduced that they really illustrate the points the author wishes to emphasize.

In a volume of this size and detail, it is obviously impossible to do more than discuss generalities. For example, in the section dealing with the uveal tract the author has avoided the old method of discussing diseases of the tract from an anatomic point of view with consequent repetitions and has plunged boldly into a consideration of pathologic processes of the tract from an etiologic point of view. This method presents a new outlook to the reader and offers a logical sequential story that lessens the labors of study. The chapter on the retina is a masterpiece. The forty year old shackles welded by Leber of Heidelberg have been burst asunder and the author presents a picture of diseases of the retina which is a composite of his own careful observations and those of other modern investigators such as Friedenwald of Baltimore. The result is a beautiful simplification for the reader.

But in the chapter on anomalies of intraocular pressure, Duke-Elder comes into his own. Not only are the standard clinical pictures presented, but even more important are his personal views, based on exhaustive investigative work and thoughtful analyses. He hints at a time in the near future when the terms "primary" and "secondary" glaucoma will be discarded and all glaucoma will be recognized in its true light as purely a secondary affair due to known causes. This chapter must be read word for word and digested carefully, and if that is done there will be fewer failures in the diagnosis of glaucoma and more successes in the treatment, with the ultimate result of a marked step forward in the worldwide movement for the prevention of blindness.

The standards set by the author are so high that one wondered whether they could be maintained in each succeeding volume. The three that have appeared so far have answered that question to complete satisfaction, so that the only worry about the fourth and last volume is When can it be written and when will it be published? This textbook of ophthalmology is an absolute "must" for every ophthalmologist. There is no question that it will do much to raise the standards of ophthalmic practice.

America Gives a Chance. By John J. Mullaney, M.D. Cloth. Price, \$8. Pp. 171, with illustrations. Tarpon Springs, Florida: The Author, 1940.

England has (or had) a sheltering home where orphans of genteel but indigent parents are cared for while being schooled in Canadian lore, in which country they are destined to be settlers. Thousands of such boys have become citizens of Canada, and among them was John Mullaney, who found a foster home with Murdo McLeod in a cabin in the Canadian woods. After eight years of that life, Mullaney lived with McLeod's father until the latter died. John then worked on a farm in New Hampshire and there met Dr. Harry Boynton, who took to the lad. By working in the summer at hotels in the White Mountains, John was able to go to preparatory school at Exeter, where he mowed lawns and won a scholarship for three successive years. He then spent a year at Harvard and a year as principal of a small high school. In 1904 he enrolled in the University of Pennsylvania School of Medicine, Philadelphia, where in spare time, he was a laundry agent and a book agent. After graduating at Pennsylvania and passing the examination to practice, he went to China as a medical missionary. Dr. Mullaney was in China at a time when great political changes were going on. He met some of the Chinese leaders, notably Hwang Hsing, for whom he edited a book "A Revelation of the Chinese Revolution." When he came back to America he accepted a position as inspector of tenements for the Philadelphia City Department of Health and later a position in the state department of health. In four years he was appointed head of the science department of Girard College in Philadelphia. Stephen Girard left \$6,000,000 to establish a college for poor white male orphans. The first class of one hundred orphans entered its first white marble building in 1848. The original endowment of \$6,000,000 has grown now, the author says, to \$88,000,000. In describing his home in Germantown, he makes an unusual remark for a man educated as a scientist. He writes "As with all 'Cancer born' people (people born from June 20 to July 21), I was very domestic." Four years later Dr.

Mullaney was offered the presidency of Meharry Medical College in Nashville, Tenn., and there he remained until he retired in 1938 and went to live in Florida. He draws a vivid picture, first of an unrecognized school without buildings, equipment and adequate organization, and second of a recognized and new Meharry Medical College with a \$2,000,000 well equipped plant. Dr. Mullaney was able to obtain this great sum through the generosity of the Rockefeller Foundation, Mr. Edward Harkness, the Nashville Chamber of Commerce, Mr. George Eastman, the Rosenwald Foundation and the Methodist Episcopal Church. A new site was selected for the college at Eighteenth Avenue and North and Hefferman streets in Nashville, not far from the Fiske University campus. The author has great faith in the future of Meharry and in some of its fine teachers and graduates. The white race gave the \$2,000,000 plant to the Negroes, and the white group must continue for a while to help them. The Negroes have not yet developed many good administrators and disciplinarians. In this book the author expresses his gratitude for the opportunities that America offered him.

Clinical Roentgenology of the Alimentary Tract. By Jacob Buckstein, M.D., Visiting Roentgenologist (Alimentary Tract Division), Bellevue Hospital, New York City. Cloth. Price, \$10. Pp. 652, with 525 illustrations. Philadelphia & London: W. B. Saunders Company, 1940.

This book from the pen of Dr. Buckstein is welcome. It is not simply another book; it is a real contribution in which the personal observations of the author add greatly to the value of the review of the literature. This is a fair and well balanced presentation of gastrointestinal radiology, including not only the digestive tube but the biliary tract, spleen, liver and pancreas. The illustrations are well chosen and nicely reproduced. It is gratifying to find so much attention paid to the small intestine. It may be offered as a slight criticism that, since the author refers rather liberally to the literature, he might have done it somewhat more accurately. It seems a bit strange that in a six hundred page book on gastrointestinal roentgenology listing some eight or nine hundred names in the bibliographic index one finds the name of Carman referred to only twice.

In the title and in the preface the author stresses the fact that the book is a clinical treatise. The reviewer believes that clinical roentgenology is the only kind worth while. In fact, unless the roentgenologist devotes himself exclusively to research in problems relating to the purely technical side of radiology he must needs be a clinician. One who attempts to practice roentgenology from any other than the clinical point of view is foredoomed to mediocrity; the application of the roentgen rays to diagnosis and interpretation must always be clinical. The live roentgenologist is continually on his toes, missing no opportunity to familiarize himself with the underlying etiology and pathology of the various lesions and to correlate the pathologic changes found at operation and at necropsy with the changes shown by such lesions in the screen and the roentgenogram. These facts have been well emphasized by the author. Numerous case reports are interspersed throughout the text. They are interesting and help to emphasize the roentgen observations. This valuable, readable, comprehensive and dependable work merits great praise and wide distribution.

Equinococosis pulmonar: Estudio anatómico-radiológico y terapéutico. Por Raul A. Piaggio Blanco, prof. agregado de patología médica, y Federico Garela Capurro, radiólogo de Instituto de cirugía para post graduados del M. S. P. de la Facultad de medicina de Montevideo (R. O. del Uruguay). Paper. Pp. 403, with 262 illustrations. Buenos Aires: Librería y Editorial "El Ateneo," 1939.

These authors have collaborated in various other valuable contributions to the anatomy and roentgenography of the thorax. They now in a single volume review the fundamentals of bronchography and the roentgen anatomy of the lungs and discuss in order closed hydatid cyst, the complications caused by closed hydatid cyst, the treatment of closed hydatid cyst, various causes of rupture of the hydatid membrane into the bronchi, secondary complications, sequelae and residual manifestations due to the pulmonary abscess consecutive to the pulmonary suppuration and breaking down of the tissues or to operation, pleural echinococcosis, multiple pulmonary hydatidosis and hydatid infection of the bases of the lungs. The authors are especially fitted for such work, not only because of their

previous contributions to the etiology and topography of various intrathoracic lesions and for their observations on bronchography, but also by the fact that they live in that part of the world where hydatid disease is exceedingly common among the patients of their daily practice. The medical profession of Argentina and southern Uruguay have great familiarity with hydatid disease. The lesion is a rarity in the climate of the United States. An excellent bibliography is appended.

A Study of Medical Problems Associated with Transients. By Charles F. Blankenship, Passed Assistant Surgeon, and Fred Safer, Associate Social Science Analyst, United States Public Health Service. From the Division of Domestic Quarantine in cooperation with the Division of Public Health Methods, National Institute of Health. Prepared by direction of the Surgeon General, Federal Security Agency, U. S. Public Health Service. Public Health Bulletin No. 258. Paper. Price, 25 cents. Pp. 132, with 15 illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1940.

The term transient is used to designate "any needy person in any community who is discriminated against in that community's program of material aid or medical care by the adoption of residence and technically related requirements." Such indefiniteness may explain why the estimates of the number of such transients vary from two hundred thousand to a million. The study sought to determine "(1) the origin of transiency from migration and the importance of lack of health as a cause, (2) the statutory limitations on public assistance to transients, (3) the administrative practices of agencies giving assistance to transients, (4) the medical needs of transients, (5) the influence of transients on community health, and (6) the most equitable and practical solution of the medical problems of transients and transiency." While economic motives largely determine interstate migration, a small part is caused by ill health, usually tuberculosis, which has brought at least ten thousand transients to southwestern states. Only a few are habitual migrants, and three fourths are made up of families and individuals who are seeking permanent locations. Legislation for relief in at least thirty-nine states contains "settlement" provisions that may be traced back to the Elizabethan poor laws. Transients have a 74 per cent higher disabling rate of sickness than residents. The prevailing illnesses include typhoid, dysentery, tuberculosis, smallpox and malaria, which may be transmitted to the communities visited. Insufficient resources compel relief agencies to enforce settlement laws strictly. Most public medical agencies are closed to transients for all conditions except emergencies. Special medical provisions for transients in some localities afford more adequate medical care. Living conditions except in the camps set up under the Farm Security Administration in California and Arizona aggravate health conditions. The study recommends the allotment of federal funds to states for the maintenance and improvement of local public health facilities rather than any health program organized directly by the federal government exclusively for transients. There is a complete bibliography.

Population Trends and Programs of Social Welfare. Papers Presented in the Section on Population Trends and Programs of Social Welfare at the Eighteenth Annual Conference of the Milbank Memorial Fund held on April 2 and 3, 1940, at the New York Academy of Medicine. Reprinted from The Milbank Memorial Fund Quarterly, Vol. XVIII, No. 3 and 4, July and October, 1940, pages 189-221 and 345-402. Paper. Price, 25 cents. Pp. 99, with illustrations. New York: Milbank Memorial Fund, 1940.

The six papers included in this booklet were presented in the Section on Population Trends and Programs of Social Welfare at the eighteenth annual congress of the Milbank Memorial Fund, held on April 2 and 3, 1940 at the New York Academy of Medicine. The round table and conference was attended by most of the serious students of population trends and policy in this country, and the papers represent authoritative contributions. The discussions include the effects of the population trends on social welfare, child welfare, problems of education, programs of security, problems of public health and the adaptation of social welfare programs to a changing population. From these and other contributions in the field it is apparent that the social and economic life of the country has already become affected by the changed proportions of individuals in age groups and the slowing of population increase and will in the future be much more affected. Some knowledge of this subject is a practical necessity in understanding some of the social phenomena present in the United States today.

Diseases of the Urethra and Penis. By E. D'Arcy McCrea, M.D., M.Ch., F.R.C.S.I. Cloth. Price, \$6.50. Pp. 306, with 181 illustrations. Baltimore: William Wood & Company, 1940.

At first glance at the title of this book the reader is apt to wonder whether there is need for such a volume. The thought is soon dispelled as the pages of the book are perused. It is true that with considerable effort one could obtain the information contained in this book from the various urologic textbooks and recent articles in the current literature. The author has attempted, in this book, to make available to the busy practitioner all of this information in complete form, thereby obviating the necessity of access to a large medical library. An excellent bibliography is appended for the student interested in consulting the source of material. The volume is well written and well illustrated. The author's descriptions of operative procedures are often better than the original articles from which they were taken. The subject matter has been completely and conscientiously covered, yet in a concise and easily readable manner, with elimination of unnecessary details. The general practitioner and general surgeon especially will appreciate having in their library a small volume in which can be quickly reviewed the embryology, anatomy and diseases of the penis and urethra, as well as complete instructions regarding their treatment by medical and surgical means.

Germs and the Man. By Justina Hill, Associate in Urology, Medical School, The Johns Hopkins University, Baltimore. Cloth. Price, \$3.75. Pp. 461, with 17 illustrations. New York: G. P. Putnam's Sons, 1940.

The author attempts to present the main features of bacteriology, immunology, wound healing and the chemical attack on germs in a simple and popular style. The facts supplied are essentially accurate, but at times a certain confusion is in evidence, as is the case in discussing the virus of influenza under the heading "Influenza Bacillus." Indeed, the role of viruses as understood today could well have been the subject of at least one chapter. The scientist who reads this book may be somewhat astonished at some of the chapter headings, such as "The Wily Streptococcus and Its Brother, the Pneumococcus," "Job's Curse, the Staphylococcus, and Some Less Polite Germs" and "Rogues' Gallery." It is also a little extraordinary to find that the staphylococci "belong to the hoi-polloi and have none of the fastidiousness of more refined germs." Possibly such examples, which can be multiplied many times, add to the reader's interest, though it is a little difficult to see how bringing in the Ku Klux Klan and Napoleon are necessary even in a popular treatise on bacteriology.

Estudos cirurgicos. 3.^a serie. Pelo Dr. Eurico Branco Ribeiro, director do Sanatorio São Lucas. Faprikold. Pp. 219, with illustrations. São Paulo: Sociedade Editora Medica Limitada, 1940.

This book consists of articles of surgical interest with special reference to disturbances caused by spinal anesthesia, patelloso of adolescents (Sinding Larsen-Johannsen's disease), diagnosis and treatment of acute pancreatitis, the crusade against cancer, incisions in surgery of the liver and bile ducts, organization of a surgical department, a rare case of renal lithiasis, blood transfusion, late typhoid suppuration, tuberculous pleural fistula, drainage in abdominal surgery, rupture of the gallbladder in closed peritoneum, hemorrhagic pancreatitis, the technic of gastric surgery, myositis ossificans and some other subjects. The work reported in the articles is based on personal experience of the author. The book is written in a pleasant style and its reading is useful for surgeons.

Manual of Florida Crippled Children's Commission. Paper. Pp. 28. Tallahassee, [n. d.]

The purpose of this work is to collect into one manual all information necessary to the personnel of the Florida Crippled Children's Commission in its work with indigent crippled children. Charity and service club organizations that cooperate in locating and sending children to hospitals and clinics operated by the commission should find the manual helpful in determining the eligibility and procedure for benefit applications for children in whom they are interested. Included with the rules and regulations are official acts of the state legislature, under which this work is carried on, lists of personnel, and an explanation of all official forms and application blanks. This manual is useful in the state of Florida but appears to be too limited in scope to be used as a pattern for other state crippled children's commissions.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

"APPARENTLY CURED" TUBERCULOSIS AND MARRIAGE

To the Editor:—Five years ago a young professional man in previous excellent health and with a roentgenogram of the chest negative for tuberculosis taken six months before, incurred during a period of stress and overwork what appeared to be pneumonia of the upper lobe of the right lung but what proved to be a pneumonic type of tuberculosis. After several months two small cavities appeared, the larger less than 2 cm. in diameter, in the midst of the consolidated area. Pneumothorax was induced and after some time was satisfactory, i. e., there was no visible cavity, the sputum was negative for tubercle bacilli, there was no elevation of temperature and a collapse of about 80 per cent was achieved. Eighteen months later the pneumothorax was abandoned because of a thick pleural effusion with pocket formation. In a few months the air and fluid were absorbed, and since then the lung has appeared well healed and no evidence of cavitation is present. The other lung has always been clear. Beginning three years ago the patient lived for one year on only partially restricted activity and for the past two years has led a perfectly normal existence, avoiding only overexertion and active exercise. There have been no symptoms during this time; the temperature and the sedimentation rate have been normal. There is no cough or expectoration. Is his tuberculosis healed? What is the possibility of recurrence? May marriage be permitted?

M.D., New York.

ANSWER.—According to the standards of the National Tuberculosis Association, the best classification for a patient such as the one described would be "apparently cured." This rating is justified under the following conditions: Constitutional symptoms must be absent. If sputum is present it must be found to contain no tubercle bacilli both by concentration and microscopic examination and by culture and animal inoculation. When sputum is absent, gastric lavage should be employed and the stomach contents examined for tubercle bacilli. The lesions should be stationary and must have undergone as much improvement as seems possible on roentgen inspection. When these conditions have existed for a period of two years under ordinary conditions of life, the patient may be classified as apparently cured.

At one time there was a classification of "cured," but this has been removed. The term "healed" is never justified in any type of pulmonary tuberculous lesion during the lifetime of the diseased person, since the methods of examination available are not sufficiently refined. The evidence obtained from shadows on roentgenograms, such as decrease in extent of disease, the appearance of stringlike shadows or definite increase in density, thought to be due to fibrosis, or even shadows so dense as to indicate the deposition of calcium, is not sufficient to justify the word "healed." Indeed, lesions may so decrease that the roentgenogram reveals no shadows whatever but still foci of living tubercle bacilli remain.

Physical signs and symptoms may completely disappear and the red cell sedimentation rate and the blood picture become normal and remain so, yet definite lesions may be present in the lungs whose location cannot be detected by any or all methods of examination of the living body. There are many other parts of the body in which tuberculous lesions may develop before, simultaneously with or after those in the lungs, and all of which may contain living tubercle bacilli in the absence of external manifestations of the disease, and yet their locations may not be disclosed. As long as the tissues react to tuberculin the word "healed" should be carefully avoided, as it may give the patient a false sense of security.

Tuberculosis is a relapsing disease; it is one of remissions and exacerbations. While many patients with demonstrable lesions which come under control never have recurrence of them and never have new clinical lesions develop in the lungs or elsewhere, to the point of causing illness, there are others who do have reactivation of old lesions or incur new ones. As there is no way of determining whose lesions will reactivate or in whom new ones will appear, the only safe course is to keep the patient under close medical observation not for one or five years but for the remainder of his life. Roentgenologic inspection should be made of his chest at least every year and the condition compared with that shown in previous roentgenograms.

Some persons who have had pulmonary tuberculosis treated successfully eliminate tubercle bacilli during attacks of acute

colds and bronchitis. Therefore the sputum should be examined during such attacks. Once or twice a year the urine should be examined for tubercle bacilli even though symptoms are absent. With the appearance of symptoms in any part of the body, tuberculosis should be considered until lesions are found or ruled out.

Marriage is not contraindicated, provided the patient keeps under close medical observation and exercises extreme precaution with reference to sputum whenever it is present with an acute infection of the lower part of the respiratory tract or any other condition.

MUSCULAR IRRITABILITY AND "MOUNDING"

To the Editor:—On several occasions I have observed the physical sign which is termed "mounding." The body of a muscle is struck with a percussion hammer and there occurs a momentary and local hardening and tumefaction of the muscle at the point of contact with the hammer. Does this phenomenon have clinical application? Can you give references?

Thad P. Sears, M.D., Pueblo, Colo.

ANSWER.—The sign of "mounding" is technically an indication of myotatic irritability. The phenomenon results from a localized contraction of muscle when it is struck with a percussion hammer. "Mounding" is not quite an accurate description of what happens, for there is a "dimpling" instead of a "mounding" of the skin over the muscle, caused by the slow tonic response, lasting a few seconds, with an equally slow lingering relaxation.

Myotatic irritability is found in a number of neuromuscular diseases, particularly myotonia congenita, or Thomsen's disease, and dystrophia myotonica (myotonia atrophica). In itself the sign is not of importance, but because it occurs so consistently in both myotonia congenita and myotonia atrophica the phenomenon is one of the principal signs of these diseases.

Myotonia congenita was originally described by Thomsen, who had the disease himself. Later Nissen, his great-nephew, added three to the four generations of sufferers in his own family from this rare disease, reporting 35 cases. Although the disease is hereditary in type, occasional examples are found of sporadic and single cases. Careful investigation, however, usually reveals a hereditary tendency.

The practical importance of the diagnosis at the present time lies in the modern treatment of myotonia congenita with quinine hydrochloride as described by Wolf and by Kennedy and Wolf. The dosage of quinine is 5 grains (0.32 Gm.) three times a day. This amount is usually well tolerated and has proved to be adequate for adults in eliminating the symptom of myotonia.

Myotatic irritability is not so noticeable a feature of dystrophia myotonica. As atrophy supervenes, the myotonic response disappears. Quinine is of less value in the treatment of the atrophic type of myotonia than in the congenital group.

References:

- Thomsen, Julius: Tonische Krämpfe in willkürlich beweglichen Muskeln in Folge von erblicher psychischer Disposition (Ataxia muscularis?), *Arch. f. Psychiat.* 6: 702, 1876; Nachträgliche Bemerkungen über Myotonia congenita (Strümpell), Thomsen'sche Krankheit (Westphal), *ibid.* 24: 918, 1892.
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Kennedy, Foster, and Wolf, Alexander: Experiments with Quinine and Prostigmine in Treatment of Myotonia and Myasthenia, *ibid.* 37: 68 (Jan.) 1937. Quinine in Myotonia and Prostigmine in Myasthenia, *The Journal*, Jan. 15, 1938, p. 198.

HUMAN PERSONALITY AND EMOTIONS

To the Editor:—What is the accepted opinion with regard to such abstract qualities in human personality as ambition, a sense of responsibility, egotism and patience? Can they be connected with any particular gland or portion of the brain? What are the latest observations on emotions in general such as anger or joy? Please send references.

M.D., Mississippi.

ANSWER.—Human personality is best understood and evaluated in terms of the psychologic and biologic components that make up each individual. There is a healthy growing tendency to talk in terms of psychobiology. Evaluation of personality factors in these terms not only recognizes the factors contributed by the underlying cerebral structures and patterns but also considers the general body action and psychologic training.

There are of course certain areas of the brain in which special functions are concentrated, as for example the motor speech area. Also it is known that the hypothalamic area is the important center that controls many vegetative functions. The tha-

lamic areas are concerned with feeling tone or the affective component of action. Not only does a man who gets angry have increased secretion of epinephrine, increased blood sugar and many other physiologic changes, but also it must be emphasized that the psychologic conditioning that induces the anger is part of the individual's reaction pattern. Anger therefore has psychologic and biologic components.

The following references are recommended to elucidate this psychobiologic point of view:

- The Interrelationship of Mind and Body, *A. Research Nerv. & Ment. Dis.*, Proc. (1938), 1939, vol. 19.
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Meyer, A.: Problems of Mental Disorder, New York, Macmillan Company, 1934.
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Billings, E. G.: A Handbook of Elementary Psychobiology and Psychiatry, New York, Macmillan Company, 1939.

TREATMENT OF INTRACRANIAL SUBARACHNOID HEMORRHAGE

To the Editor:—Is a physician justified in treating a case of hemorrhage from an aneurysm at the circle of Willis by repeated spinal drainage when there are signs of increasing spinal fluid pressure? Kindly give references, if any, advocating this method of treatment.

Ernest E. Thompson, M.D., Lisbon, N. Y.

ANSWER.—Repeated daily lumbar puncture with the slow removal of from 15 to 25 cc. of cerebrospinal fluid is a safe and commonly used procedure in cases of intracranial subarachnoid bleeding, regardless of its origin. Such a withdrawal may be done with increasing fluid pressure, but it should always be done slowly and with manometer control. Intravenous dehydrating agents, such as sucrose, may accompany the puncture treatment, and for reduction of the pressure it is the method of choice, since the spinal puncture should be primarily for the purpose of freeing the cerebrospinal fluid of red blood cells, so that as complete absorption as possible of the continuously formed cerebrospinal fluid may occur without the obliteration of the absorptive mechanism—the arachnoidal villi. Such aneurysms have been successfully treated surgically by direct intracranial attack or by ligation of the carotid. Two recent articles by McDonald and Korb shed light on the subject:

- McDonald, C. A., and Korb, Milton: The Circle of Willis: Its Angles and Its Aneurysms, *Rhode Island M. J.* 23:145 (June) 1940.
Intracranial Aneurysms, *Arch. Neurol. & Psychiat.* 42:298 (Aug.) 1939.

POLLENS IN PUERTO RICO

To the Editor:—Are there the same allergens in Puerto Rico as we have here in the United States? More specifically, a patient intends moving to this island in the near future as a member of the engineering staff at the United States Army. He is severely allergic to grasses and the ragweeds and has been controlled with success by perennial therapy. Before he leaves he would like to know if he must continue this therapy for prophylactic reasons, since he intends spending the entire summer and fall in this place. Are there grasses and weeds there similar to ours in the Eastern states or are they different?

Manahiem Siegal, M.D., Brooklyn, N. Y.

ANSWER.—The patient will not encounter ragweed pollen in Puerto Rico. According to the best information available he will not encounter pollen of any related plant, so it would not seem necessary to continue desensitization against ragweed. He is probably receiving desensitization treatment with a standard grass mixture containing the pollens of sweet vernal grass, blue grass, orchard grass, timothy and redtop. None of these grasses are found in Puerto Rico. However, Bermuda grass is present in Puerto Rico as well as other parts of the West Indies. It is the grass which is usually used for lawns or golf courses and is well known as a serious cause of allergy. Those who are sensitive to the common meadow grasses of the Northern states are usually sensitive to Bermuda grass. The amount of pollen in the air in Puerto Rico from Bermuda grass and other native grasses is probably less than the amount in the air in the Northern and Eastern states during the grass season, but the Puerto Rican pollinating season lasts throughout the year. No pollen statistics are available. It would not seem advisable to omit desensitization against grass even though it cannot be

guaranteed that the kind of grass pollen which the patient is now receiving will protect him against grass pollens he will encounter in Puerto Rico. The patient might well be tested with Bermuda grass pollen. If he is strongly sensitive, this fact should be taken into consideration in deciding on appropriate protective treatment.

INTERRUPTION AND RESUMPTION OF PERTUSSIS VACCINATION

To the Editor:—A child aged 20 months received a first dose (1 cc.) of Sauer's D. S. pertussis vaccine. An intercurrent infection of the upper part of the respiratory tract has prevented me from continuing with the next vaccination. The child is now in its third week of the current illness, and I have decided to discontinue the pertussis vaccination entirely for the present. Is there any danger of a severe reaction in this child if and when this immunization procedure is resumed? When will it be safe to start it again? Should the vaccination be started anew as if the child had never received the first dose?

E. L. Straub, M.D., Philadelphia.

ANSWER.—Whenever the immunization procedure has been interrupted for more than a month it is advisable to give the entire series of three injections. Authorized Haemophilus pertussis vaccine (Sauer) contains no trace of animal protein. It does not sensitize the infant, and there is no danger of a severe reaction. The preferred concentration of authorized H. pertussis vaccine is the new 15,000 million bacilli per cubic centimeter. It causes fewer reactions than the other concentrations. The dose with the least reactions is 1, 2 and 4 cc.; the best interval between the three injections is three weeks. Syringe and needle should be sterilized by heat and the vial cap and the patient's arm sterilized with alcohol on sterile cotton.

CONTINUED ADMINISTRATION OF MAGNESIUM SULFATE

To the Editor:—I gave magnesium sulfate 20 grain (1.3 Gm.) enteric coated tablets before meals to a patient with severe psoriasis over the entire body (diagnosis by a dermatologist) coming on soon after cholecystectomy five years ago, and the condition cleared within two weeks. The skin remains clear as long as this is taken but soon after it is discontinued itching, heat and redness appear but again clear as soon as magnesium sulfate is renewed. The question is What is the harmful effect of this treatment long continued, as seems needed in the case, and what will be the probable first untoward symptom? What might be the effect of adding one-half grain (0.03 Gm.) of sodium succinate to each 10 grains (0.65 Gm.) of magnesium sulfate?

P. W. Hildebrandt, M.D., Mount Sterling, Ohio.

ANSWER.—The fact that soluble salts of magnesium are poorly absorbed in the intestine is one reason that they are satisfactory in large concentrations as cathartics. Elimination of any absorbed magnesium salts begins almost immediately through the kidneys, resulting in diuresis if the amounts of the salt are sufficiently high. The U. S. P. dose of magnesium sulfate is 15 Gm. In this instance the patient received only 1.3 Gm., enteric coated. There should be little unfavorable reaction in taking this amount of magnesium sulfate over a period of time, provided there is no extensive kidney disease. Possibly a slight colitis might be anticipated. There seems to be no reason why one should add 0.03 Gm. (one-half grain) of sodium succinate to each 0.65 Gm. (10 grains) of magnesium sulfate; it would seem to be an irrational mixture.

SWALLOWING FLIES

To the Editor:—Will you inform me what poisons, if any, may be liberated by green bottle flies or blow flies if they are swallowed?

Charles H. Lupton, M.D., Norfolk, Va.

To the Editor:—Please give me an opinion on the possibility of the inadvertent ingestion of house flies causing severe illness and in pregnancy causing miscarriage.

W. N. Jenkins, M.D., Port Gibson, Miss.

ANSWER.—Blowflies breed in decaying animal matter and feed on various types of organic debris. They are, therefore, more or less laden with germs of various kinds. Some of these organisms are inimical to man and may cause digestive disturbances or the onset of diseases such as dysentery or typhoid. There are no true poisons or toxins emitted by blowflies or contained in their bodies. There are instances in which blowflies have been swallowed without producing any ill effects. P. F. Fattig, of Emory University, reports having twenty-five different people drink carbonated water in which from one to several green bottle flies had been soaked for several days. No ill effects were observed by any of these persons.

The swallowing of houseflies would not necessarily result in any ill effects. All varieties feed on excrement and other waste matter and may therefore contain pathogenic germs which could cause disease. The knowledge that a fly had been swallowed might, in a sensitive person, produce vomiting and perhaps more serious reactions.

PREGNANCY AFTER NEPHRECTOMY FOR TUBERCULOSIS

To the Editor:—A white woman aged 30, a primipara, had her last menstrual period Oct. 26, 1940. Her past history discloses that she had a nephrectomy on the right side in 1930 because of tuberculosis of the right kidney and of the bladder. Since the operation she has been in perfect health, with no urinary complaints. She has gained 20 pounds (9 Kg.) and is now seven weeks pregnant. The catheterized specimen of urine shows specific gravity 1.020, acid reaction, 3 to 4 red blood cells per high power field, occasional white blood cells, a slight trace of albumin and no casts. The Wassermann reaction is negative. The hemoglobin is 70 per cent, the red cell count 3,420,000 and the white blood cell count 11,300 with 65 per cent polymorphonuclear leukocytes and 35 per cent small leukocytes. The sedimentation rate is within normal limits. There is no evidence of pulmonary tuberculosis. Are the presence of red blood cells in her urine and the fact that she has had a nephrectomy any indication for a therapeutic abortion? Should the patient be given any specific medication or diet?

M.D., Pennsylvania.

ANSWER.—A few red blood corpuscles in the urine are not of great significance, but in a case such as this it is necessary to determine positively whether the remaining kidney is or is not healthy.

If a capable genito-urologist says the kidney is tuberculous, abortion is indicated. If it is healthy the pregnancy may be allowed to proceed, with of course great watchfulness.

POSSIBLE AGE OF CONCEPTION

To the Editor:—An attorney asked me if it is true that a 12 year old girl can or will become pregnant the first time she has intercourse. He stated that two members of my profession have told him it is not possible for a girl to become pregnant on the first intercourse. I have never heard of such a claim; however, I would appreciate your statement as this may have some legal bearing. The 12 year old girl is pregnant.

M.D., Kansas.

ANSWER.—A 12 year old girl can become pregnant at first coitus. The state of development of the sex organs and not the age will determine the possibility of conception. Pregnancy is theoretically impossible prior to puberty. Puberty is heralded by the onset of the menses, which may occur normally as early as the age of 9 or 10 or be delayed until 15 or 16. The age of puberty varies according to race, climate, hereditary background and social status. After puberty there occurs a period of development which has been designated as adolescence, during which the reproductive organs develop their capacity for reproduction. In this period follicular growth occurs in the ovaries, but follicles fail to rupture. Usually adolescence is a period of physiologic infertility. The period of adolescence in human beings may last two or three years. Maturity is reached when ovulation begins, after which conception is possible.

PREGNANCY IN POSTENCEPHALITIC PARKINSONISM

To the Editor:—Is there any legitimate medical indication for a therapeutic abortion in a woman aged 36 with one normal delivery seventeen years ago who has at the present time an advanced degree of postencephalitic parkinsonism which she has had for the past fifteen years? She has recently had oculo-gyric crises and is eight weeks pregnant with about grade 2 nausea and vomiting. I have never seen or heard of a case at pregnancy in parkinsonism, and I am interested to know if there is any danger in allowing her to go to term. Tincture of stramonium and bulgarian belladonna medications control her symptoms but little.

M.D., Utah.

ANSWER.—In view of the long duration of the chronic encephalitis it would probably be safe to let the pregnancy take its course. However, if the vomiting should become more severe or other complications set in, one would be justified in considering the induction of labor at an earlier stage than would be justified if no such nervous disease existed.

BOWING OF LEGS IN INFANCY

To the Editor:—A child aged 16 months has had the best of care and is normal in all respects except that his legs are quite bowed. What is the prognosis and treatment?

M.D., Maine.

ANSWER.—Bowing of the legs in infancy is usually the result of mild rickets, which at times occurs despite careful dietary management. No treatment of a mild or moderate curvature at this age is necessary, as the normal process of bone growth usually straightens the limbs within a period of one or two years.

STEREOPSIS AND GLASSES

To the Editor:—I have been told that a man wearing glasses does not see the proper images when viewing roentgenograms in the stereoscope. Are persons without glasses better able to view stereoscopic films according to the laws of optics?

Everett W. Gaikema, M.D., Grand Rapids, Mich.

ANSWER.—Glasses are not a handicap to viewing stereoscopic roentgenograms. As a matter of fact, any one wearing glasses who has even a moderate degree of astigmatism has sharper vision, and therefore even more accurate stereopsis, than one with a refractive error who does not wear glasses, particularly if this refractive error is astigmatic. Stereopsis depends on binocular visual training early in life. If one has developed this sense one will retain it, unless the visual acuity in one eye is reduced below 20/50.

TESTING STOOLS FOR BLOOD AFTER IRON AND COPPER ADMINISTRATION

To the Editor:—Does a patient taking 10 units of liver extract intramuscularly per week and daily doses of copper and iron give a stool positive for blood to the benzidine test in the absence of conditions giving rise to bleeding in the gastrointestinal tract?

Harold J. Rothenberg, M.D., Chicago.

ANSWER.—The use of intramuscular liver extract does not produce a positive benzidine reaction in the stools. Iron given orally, however, does affect the benzidine reaction in the stools in such a way that it is practically indistinguishable from the test for blood. In cases in which it is necessary to determine chemical blood in the stools, the guaiac test should be used. In the presence of iron, this test may give a temporary purplish blue, but this reaction is quite different from the sustained deep blue that is obtained with blood.

TOXIC SYMPTOMS FROM INSECTICIDE

To the Editor:—Recently a flour mill employee became ill following the use of an insecticide. His symptoms were fatigue, headache and pains in abdomen, back and flexor muscles of arms and legs. He had occasional vomiting; the blood pressure was 96 systolic, 60 diastolic, the pulse 82. There was moderate cyanosis of the lips and nail beds. Tenderness was present in the lumbar region. Otherwise the examination was negative. He had been using "Dr. Lobell's Mill Insecticide," manufactured by the Huntington Laboratories of Huntington, Ind. The only known ingredient is pyrethrum. Do you have a formula for this insecticide? Could the patient's condition have been the result of using it?

J. R. Cummings, M.D., Flemingsburg, Ky.

ANSWER.—Dr. Lobell's Mill Insecticide is said to consist of pyrethrum extract dissolved in a mixture of about 90 per cent by volume of odorless kerosene and about 10 per cent by volume of carbon tetrachloride. It is entirely possible for the symptoms described to be due to exposure to this mixture, particularly in view of the presence of the pyrethrum and carbon tetrachloride.

SODIUM HYPOCHLORITE FOOTBATH FOR RINGWORM

To the Editor:—When I tried to buy the 20 per cent solution of sodium hypochlorite mentioned in *Queries and Minor Notes* (Footbath Solutions for Ringworm, *The Journal*, April 20, 1940, p. 1577) I was told that such a solution was not manufactured and besides was unstable unless sodium hydroxide was added; this, however, would make the solution irritating to the skin.

B. S. Stell, M.D., Angola, N. Y.

ANSWER.—Sodium hypochlorite, 20 per cent solution, is unstable in open or improperly sealed containers. It can be purchased from a number of chemical companies in chemical carboys in 20 per cent strength. All that is necessary is to dilute this solution 20 to 1 with water for use in footbaths. This solution should then be changed every two days.

THUMB SUCKING

To the Editor:—The reply to W. E. Oldham's query on thumb sucking (*Queries and Minor Notes*, Dec. 28, 1940, p. 2301) would not be endorsed by psychiatrists or by most pediatricians. The use of mechanical restraints should be reserved for the most carefully selected cases. I myself doubt that they should ever be employed. In any consideration of thumb sucking there are two important factors, both of which were ignored in the reply: 1. Thumb sucking is a normal activity of most young infants, a legitimate method of obtaining satisfaction and a means of learning the uses of their senses. In most cases the practice diminishes as other methods of obtaining satisfaction are mastered. 2. When the practice is prolonged beyond the period of infancy and excessively indulged in, it must be considered as a signal that all is not well with the infant's world. It is the responsibility of the physician not to stop the habit but to correct the factors responsible for its continuation.

Gustave F. Weinfeld, M.D., Highland Park, Ill.

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HANS ZINSSER AND HIS STUDIES ON TYPHUS FEVER

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NEW YORK

All science and philosophy and every form of human speech is about objects capable of being perceived by the speaker and the hearer; . . . when our thought pretends to deal with the Subject it is really only dealing with an Object under a false name. The only proposition about the Subject, namely, "I am," cannot be used in the same sense by any two of us, and, therefore, it can never become science at all.—James Clerk Maxwell.¹

I. INTRODUCTION

At this time the recent tragic death of Zinsser should make us pause: to count our great loss; to pay our respects and esteem to his memory, and to recall his great and many contributions to science and, this evening, to the knowledge of typhus fever. Although I also at one time labored in this field, I am keenly aware of my deficiencies in trying to set forth an appraisal of his work on typhus fever, and I seek the pardon in advance of those who were more closely bound to Zinsser in his work and consequently more capable of this task.²

Again, I recall that about seventeen years ago, when he left Columbia University to undertake the direction of the Department of Bacteriology at Harvard Medical School, he asked me to accompany him as his associate—an opportunity which had to be passed over at that time. Indeed, often have I sought his advice on problems that were perplexing me and I was always made to feel that he could be depended on for firm support.

II. ZINSSER'S GENERAL CONTRIBUTIONS TO LITERATURE

Of Zinsser's scientific volumes, on bacteriology and on immunity, little need be said since they have passed through edition after edition and are used as standard textbooks.

Apart from his writings on these subjects, he has contributed to the field of general literature during a period covering almost the last two decades of his life. His contributions, which have been praised with unusual fervor by literary critics who have reviewed them, consisted of essays (chiefly on medical problems), poetry and two volumes: the first, published in 1935, *Rats, Lice and History*, is a remarkable "biography" or

"life history" of typhus fever. In this effort to make scientific work intelligible to the lay reader, he has succeeded to an extraordinary degree. The second appeared shortly before his death and is *As I Remember Him: The Biography of R. S. Fishbein* has placed it in the same rank with the great medical biographies of history: Pasteur by Vallery-Radot, Horsley by Paget and Osler by Cushing. In a review of this book, Dr. Canby of Yale refers to Zinsser as "the complete human being."

The rubric culled from Clerk Maxwell which adorns this paper implies that only a personal estimation can be given in describing Zinsser the man. My opinion, however, must be universally shared, for he stands completely revealed by his literary works. In them one finds a portrait of a philosopher and humanist, tender hearted with his fellows, capable of great self sacrifice, with remarkable courage in face of suffering and even of death. This picture is drawn in gay colors and with bright wit. An enduring tribute has been paid him by one of his young associates (speaking for his colleagues as well): "He helped me most when I needed help most." How well he fits into the description set forth by Rivers in the last lines of his *Lane Lectures on Viruses*, of a useful laboratory worker: a patient, hard-working, imaginative and generous being!'

III. HISTORICAL BACKGROUND OF TYPHUS RESEARCH

Strong² enumerates one hundred and seventy-six scientific papers written by Zinsser for current journals. Those which concern us most on this occasion and which are outstanding as a series of consecutive contributions are the ones dealing with typhus fever, typhus-like diseases and their causative agents, the Rickettsiae.

He entered into the field of these problems first in 1915 when he went to Serbia as a member of the American Red Cross Sanitary Commission, on the Typhus Commission as organized by Dr. Richard P. Strong. As he admits, this effort served for orientation on the problem: "I gathered a great deal of information about the clinical (and pathological) aspects of the disease, did a great many autopsies, and learned the things that one can learn about typhus by living in an epidemic region. But scientific studies were hampered, not by any lack of opportunity or equipment, but rather by the fact that in typhus investigations at that time there was much underbrush to be cleared away. Before the true causes of the disease were uncovered, almost every known micro-organism had, at some time or other, been implicated." What he saw then in Serbia impressed him profoundly and led him to confess "I would never aspire to administrative power or prominence so long as I could remain close, heart and hands, to the problem of disease."

¹ From the Laboratories of the Rockefeller Institute for Medical Research.

² Sigma Xi Lecture, read Feb. 12, 1941, before the University of Cincinnati, Cincinnati.

¹ From the essay *Psychophysik*, submitted to the Eranos Club and published in *The Life of James Clerk Maxwell*, by Lewis Campbell and William Garnett, London, Macmillan & Co., 1882, p. 463.

² For a penetrating study and a sympathetic eulogy of Zinsser by one of his colleagues, see Strong, R. P.: *Science* 92:276, 1940.

It was during the last ten years of his life, from 1930 on, that he and his associates, among the latter notably Castaneda, his "faithful collaborator," engaged in an energetic and fruitful research on the epidemiology, immunology, diagnosis and classification of the rickettsial diseases. From 1915 to 1930 research on such diseases was rapidly expanding, and a number of solid bases had been constructed on which he could build enduring structures. There were at least two reasons for the rapid advances which were then made; one the prodigious numbers of victims of the disease during the World War and the postwar period, and the other the discovery by Nicolle, Conseil and Conr in 1911 that guinea pigs were susceptible to experimental typhus infection. Theretofore only man and monkey had been found susceptible; progress under such conditions would necessarily be slow.

When the "underbrush" was cleared away at the end of that period, what was left was a substantial heap of facts. The insect vector of typhus fever was definitely established to be the body louse by Nicolle, Comte and Conseil in 1909, and thereafter it was shown that a hundredth part of one infected louse could induce disease in the guinea pig, and that a single infected louse sufficed to convey typhus to man. In other words, since 1 cc. or more of patients' blood is an infective dose for guinea pigs, it was apparent that the causal agent multiplied within the insect. Moreover, the mode of infection of man or lower animals by lice was by means of a bite through skin infected by the insects' excreta, since the infective agent was located in louse feces but not in their salivary glands.

Then also the exciting cause of typhus fever was set on a firm foundation. In 1916 da Rocha-Lima found in typhus-infected lice enormous numbers of minute micro-organisms packed tightly within the cells of the gut. He saw them as a new genus which he named *Rickettsia*, thus honoring the memory of Ricketts, who in 1906-1909 first called attention to them, having seen them in stained film preparations of the blood of man, monkey and guinea pig and in ticks infected with Rocky Mountain spotted fever; and (with Wilder) in the blood of man and in the lining cells of the gut of lice infected with Mexican typhus fever. The species name, *proWazeki*, was given in honor of von Prowazek a co-worker of da Rocha-Lima and, like Ricketts, a victim of the disease he had been studying. Da Rocha-Lima's finding was soon confirmed by others, but the relation of these micro-organisms to the etiology of typhus was for a time obscured by reports of similar structures that were seen extracellularly or in the lumen of the gut of non-typhus-infected lice. However, work in 1917 to 1922 by da Rocha-Lima, by Arkwright and by Wolbach and their respective collaborators fully proved the identity of *Rickettsiae* with the causal agent of typhus. Wolbach, Todd and Palfrey found them in the tissues of patients with Mexican (1920) and European (1922) typhus fever. Then a number of different species of this new genus were observed in insects implicated in other maladies such as trench fever (*Rickettsia pediculi*, *seu wolhynica*, *seu quintana*) and Rocky Mountain spotted fever (*Dermacentor rickettsii*, Wolbach, 1917); also in a number of different species of arthropods, notably by Cowdry in 1923-1925. Among the discoveries of the latter was *Rickettsia ruminantium*, the cause of heartwater fever in cattle, sheep and goats through a bont tick vector *Amblyomma hebraeum*

(Cowdry, 1925). Indeed, as early as 1924 Hertig and Wolbach collected data on forty-two species occurring in various arthropod hosts.

The rickettsial species were determined in rapid succession during the ensuing years as the etiologic agents of a number of other diseases. Apart from typhus in all of its forms, to be described, and Rocky Mountain spotted fever, these maladies comprised the tsutsugamushi fever group, which includes Sumatra mite fever and rural (or scrub) typhus of Malaya; the spotted fever group containing the Minnesota variant of Rocky Mountain spotted fever, São Paulo typhus, *fièvre boutonneuse*, African tick fevers, Kenya fever and the recently described American and Australian *Q* fever (*Rickettsia burneti*).

At present *Rickettsiae* can be defined as minute pleomorphic, gram-negative, bacilloid structures which cannot be stained satisfactorily by means of ordinary dyes and cannot be cultivated outside the body except in the presence of living tissue cells. They are contained within the bodies of arthropods, which in turn convey them to mammalian hosts, sometimes through an intermediary such as a rodent. In addition, infection by them is associated with development of a positive Weil-Felix reaction, to be described, except in the case of infected guinea pigs, when it is difficult to demonstrate this reaction, and the pathogenic forms always develop intracellularly, in the cytoplasm for typhus *Rickettsiae* and in the cytoplasm and nucleus for Rocky Mountain spotted fever (Pinkerton and Hass in 1929-1932). There is an exception to this definition: *Rickettsia melophagi*, found in sheep-lice and nonpathogenic, is cultivable in ordinary mediums and its proper classification is still debatable.

Before 1916 there was no diagnostic test available for recognition of typhus (or of rickettsial) infections. In that year Weil and Felix discovered that a positive clumping reaction occurs when serum of a typhus patient is added to an emulsion of a common nonpathogenic bacterium, proteus bacillus, its O variant of strain X 19 or X 2 (later also X K). Although the latter bacilli are not the causal agent of the disease, the reaction is of inestimable value to the clinician and epidemiologist because of its reliability and its specificity in indicating rickettsial infection—even the type depending on whether the X 19 or X 2 or X K strains are reactive.

During this postwar period the pathology of the natural as well as the experimental disease was determined. Spielmeyer in 1919 and Wolbach, Todd and Palfrey in 1922, among others, showed that the lesions in man and in lower animals are practically identical and that typhus fever is primarily a disease of the smaller blood vessels, chiefly those of the skin, the brain and the skeletal muscles and, to a lesser extent, of the viscera. *Rickettsiae* can be found in the vascular endothelium, which is swollen and proliferated, resulting in thrombus formation. Aggregations of monocytes and of lymphoid and plasma cells about the vessels, also of polymorphonuclear and mast cells, serve to give the appearance of distinctive "nodules," which stand out with special clarity in the brain. In this tissue the infiltration is not only by the hematogenous elements but also by neuroglia cells.

It was revealed in the two decades preceding 1930 that active as well as passive immunity can be produced both in man and in experimental animals. Sporadic attempts were made to apply the principles of active immunization through the use of small doses of the liv-

ing infective agent; but this proved dangerous. On the other hand, passive immunization through the use of immune serum was found to be impracticable not only for prevention but also for treatment. Mechanical delousing, in a variety of ways, was the only recourse then available to limit the spread of the disease during epidemics, and, to protect small numbers of individuals against typhus, Weigl's vaccine consisting of suspensions of the excised gut of lice that had been infected rectally with *Rickettsiae* was employed. The suspension of killed micro-organisms was first prepared in 1920 as a vaccine, on the basis of prior observations that killed infected lice could induce the Weil-Felix reaction in rabbits and resistance to reinfection in guinea pigs.

The discovery in 1919 by Nicolle of clinically inapparent infections in laboratory animals given European typhus material was of great significance. As Nicolle defined the condition, the animal exhibits, after a definite period of incubation, an acute stage of silent infection (interpreted as multiplication of *Rickettsiae*), progression of the infection, followed by regression and return to normal, except that the host now shows a positive Weil-Felix reaction and resistance to reinfection. No clinical signs are observable. Such types of inapparent infection occur as a general rule in the rat and rabbit, the white mouse, and sometimes in the donkey. Moreover, differences were noted in the reaction of the guinea pig to European typhus on the one hand and to tabardillo, the Mexican form, and endemic Southeast United States typhus on the other by Neill in 1917 and by Mooser and by Maxcy in 1929 and were chiefly in relation to the extensive orchitis and tunica vaginalis inflammation exhibited by the latter forms of the disease. In 1926 Maxcy made the significant observation that, in cases occurring in Southeastern United States, louse transmission could be definitely excluded. Then Mooser in 1928-1929 disclosed that injection into the rat of the strain existing in Mexico induced a febrile response corresponding to inflammation of the tunica in the cells of which there were large numbers of *Rickettsiae*, the same reaction having been obtained by Maxcy in 1929 with material deriving from endemic typhus in the region of Southeastern United States. Again, the louse as a vector was excluded in Brill's disease—a form of endemic typhus existing in cities in Northeastern United States and arising especially among emigrants from typhus areas of Europe and shown to be related to Old World typhus. While at the outset all these forms were considered as one disease, typhus fever, now there was question about that unity: Old World and New World; louse borne and not louse borne; endemic or sporadic and epidemic typhus were new designations, and the need for classification arose.

IV. HIS ACTIVE WORK ON TYPHUS FEVER

Thus sketched briefly, with only some of the main lines drawn, was the picture of typhus fever as it appeared to Zinsser and his associates when they began in 1930 to work actively on the subject. His colleagues, besides Castaneda, were at one time or another Batchelder, Enders, FitzPatrick, Macchiavello, Mooser, Plotz, Schoenbach, Seastone, Wei and Zia.

Zinsser's interest in creating order out of the mass of accumulated evidence was expressed in the following classification of the typhus group of diseases, which was evolved from the work of others, his own confirmation of their experiments, and from his and his associates' studies.

General Characteristics of the Typhus Group.—The relation of one to another of the typhus diseases is close, and cross immunity, with certain exceptions to be noted, exists within this group but not with other rickettsial maladies. *Rickettsiae* are present in the cytoplasm but not in the nucleus. The pathologic changes in all are connected with the vascular system, as already described, but the necrotic lesions of other rickettsial disorders are lacking here. Nodular reactions occur in the brain in the experimental diseases in guinea pigs. Under epidemic conditions the diseases are spread through conveyance of the infective agent from louse to man and from man to louse. The Weil-Felix reaction of OX 19 type is elicited by these diseases, and active immunity is brought about by one against the other in the experimental infection of monkeys and guinea pigs. This group immunity is probably also developed in man. The two chief forms are the classic and the murine typhus.

Classic typhus fever, which is also called historical, European or epidemic typhus, occurs as a rule in Europe and central and north Africa and now and again arises concomitantly with the murine form in Mexico, South America, South Africa and Asia. The source of the infection is man or typhus-infected human strain of lice, and the insect vector is again the louse. It is characterized in the experimental guinea pig by either an absence of the Neill-Mooser orchitic reaction or by the occurrence of the latter irregularly (in about 25 per cent of infected animals) with slight and early lesions associated with sparse numbers of *Rickettsiae* in the tunica vaginalis. Only an inapparent infection can be produced in rats, and serial transmissions fail in mice. In rats which are treated by roentgen rays (a method devised by Zinsser and Castaneda in 1932 for production of large quantities of murine typhus *Rickettsiae*) no such increase in numbers of micro-organisms as is found following inoculation of murine typhus *Rickettsiae* is observed. While active cross immunity of classic and murine typhus exists, passive immunity tests reveal that an antimurine serum neutralizes classic typhus *Rickettsiae* only irregularly and, furthermore, injection of murine vaccine induces again only irregular resistance to reinfection with European typhus material. Castaneda has recently found, however, that only large doses of formalized rat lung *Rickettsiae* can induce a regular immune response against the classic typhus agent. In addition, vaccines of the latter prepared by Weigl's method show overlapping serum reactions, but not identity, with the murine strain prepared from rats treated with roentgen rays.

Murine typhus fever, also called New World or endemic typhus, has been found to arise in Mexico (tabardillo), in Southeastern United States (Maxcy's disease), in France (ship fever of Toulon), as urban typhus of Malaya and as Manchurian typhus. It has also been found in Syria, Greece and Africa, in China and Indo-China, and possibly in the Philippines and South America. The reservoir of the infective agent is rats, possibly also mice, and infection is conveyed from rat to rat by rat fleas (*Xenopsylla cheopis*—shown by Dyer and his associates in 1931) or by rat lice (*Polyplax spinulosus*—a discovery made by Mooser, Castaneda and Zinsser in 1931). It was Dyer and his associates who first disclosed the presence of the infective agent in rats trapped in a typhus focus in Baltimore and Savannah in 1931, and shortly thereafter Mooser, Castaneda and Zinsser, during an epidemic originating in the Belem prison in Mexico City, also found the

typhus agent in rats trapped within the prison. From rat to man the vectors are fleas, especially the cheopis species, and from man to man, *Pediculus humanus*. It is characterized in the experimental disease in guinea pigs by the Neill-Mooser orchitic reaction associated with many, sometimes prodigious numbers of Rickettsiae in the tunica vaginalis. The murine type infection induces in rats a febrile, often fatal disease accompanied by numerous Rickettsiae in the tunica. In roentgen ray treated rats there is a peritoneal accumulation of the micro-organisms. They can be propagated indefinitely in serial passages in white mice. Active and passive immunity against homologous murine strains exist. The historical and murine types of infection follow the same clinical course, except that the latter, as an endemic malady, can be milder in its manifestations and have a lower mortality rate. On the other hand, European typhus can also exhibit in its endemic form the same mildness, but the murine disease can develop into expanded epidemics of fulminating infection with a high mortality rate and then be similar in effect to epidemics of Old World typhus.

There is now left for consideration another form of endemic typhus, namely Brill's disease. The malady was first shown to be a form of typhus by Anderson and Goldberger in 1912. In 1933-1934 Zinsser found from a study of the records of 538 cases treated in Boston and New York City from 1910 to 1933, and from observations with Castaneda on three strains of the infective agent deriving from Brill's disease, that this infection constituted at least one of the sources of classic typhus fever in the United States. In this study the strains acted in prolonged series of guinea pig passages precisely like Old World typhus, and the detailed records of the 538 patients revealed that almost all of them had emigrated from typhus regions of Europe (chiefly from Russia). Furthermore, from an analysis of his statistical material Zinsser showed that Brill's disease is a manifestation of a recrudescence of an infection acquired abroad. He deduced that a small number of individuals who have had classic typhus years ago can remain inapparent carriers of the disease and a second attack of clinically apparent infection results when their state of immunity is somehow disturbed. In other words, for this endemic form of typhus rats need not be the reservoirs of the infective agent, but man himself becomes the carrier and the source of propagation of the disease.

In this connection it should be mentioned that Mooser, also Castaneda and Zinsser in 1930, passed murine (Mexican) strains of typhus through lice by the Weigl method, i. e. by means of rectal inoculation. From the results of these experiments, Zinsser infers that, since the louse infection is in most respects no different from similar infection with the European virus, the louse should therefore be considered as capable of epidemic transmission of murine as of European typhus. Furthermore, strains deriving from patients in the course of prolonged epidemics in Mexico and passed through the cycle of man-louse-man can temporarily be modified in the direction of the characteristics of European typhus. Zinsser suggested the interesting problem of noting what might happen if the European strain was passed through rats and fleas for a number of generations.

Another problem for which solution was sought in Zinsser's laboratory concerned the diagnostic reaction of rickettsial diseases, the Weil-Felix test. Theories

have been offered from time to time to explain the mechanism of this reaction, and Zinsser attempted to investigate the validity of two of the theories. One idea was that the Rickettsiae and the proteus bacilli are expressions of phases in the cycle of an ultra-microscopic virus. He believed that there was no evidence deduced to show such relationship and furthermore, with Batchelder in 1930, proved that the murine strain was not filtrable and that Rickettsiae by themselves could be identified with the infective agent. The other theory held that, in view of the positive Weil-Felix reaction, the infective agent of typhus can be identified as the proteus bacilli. With Castaneda in 1930 Zinsser demonstrated when using washed murine Rickettsiae that the etiologic agent of tabardillo was the rickettsial body as such, which in turn could not be considered as a true bacterium since it rigidly depended for multiplication on the survival of susceptible cells, whether insect or mammalian. Castaneda and Zia in 1933-1935 went further in an attempt to define the mechanism of the Weil-Felix reaction and showed that proteus X and the murine Rickettsiae contain a common antigenic factor, and from both micro-organisms a soluble-specific material, probably a polysaccharide, can be extracted, which is precipitable by prepared murine antisera and by human typhus serum.

In respect to other serologic antibodies in typhus serum, Zinsser and Castaneda stated in 1932 that the serum secured from patients or from experimental animals recovered from European or murine typhus infection contains agglutinins for murine Rickettsiae. In addition, Castaneda in 1934-1936 found precipitins and opsonins for these micro-organisms. The fact that the serum of man convalescent from murine or classic typhus and of animals recovered from either infection exhibit opsonins for the murine strains shows how close both types of typhus are. Castaneda also reported the presence of complement-fixing antibodies for them but not for the proteus X 19 bacillus or its soluble-specific substance.

The next problem which Zinsser attempted to solve was that of prevention of typhus fever by means of active and passive immunization.

In the earlier trials with passive immunization for preventive, and the use of immune serum for curative purposes, begun in 1893, human convalescent serum was used; later, to 1930, attempts were made to immunize large animals, horses or donkeys, with active typhus material. The results in general were not satisfactory.

It also appears from tests carried out by Zinsser and Batchelder in 1930 that serum from convalescent guinea pigs and from recovered typhus patients loses its content of protective antibodies if it is collected later than three weeks after defervescence. This would serve again to limit its usefulness. Zinsser inferred from the results of these experiments that the prolonged immunity existing after an attack of typhus would depend more on the resistance acquired by the tissues of the body than on circulating antibodies. Failure to obtain an effective animal antiserum was ascribed to insufficient dosage of Rickettsiae employed as antigen. In 1932-1934 Zinsser and Castaneda made use of the large numbers of murine Rickettsiae that could be obtained from rats treated by roentgen rays, as will be described, and injected horses repeatedly over several months with such material after formolization. In the end the serum showed a Weil-Felix

reaction of 1:640 and could protect guinea pigs against infection by the homologous strain, but only partial protection could be obtained against the European strain. The antimurine horse serum was used in the field in Mexico and in Tunis and Rumania. In Mexico a fair degree of success in preventive and therapeutic effect was noted, although a sufficient statistical sample for analysis is still lacking, and in the Old World it proved inadequate, as might be expected from the results of the guinea pig tests just mentioned.

In the field of active immunization, Zinsser foresaw the necessity of using killed *Rickettsiae* as the immunizing agent. The use of active blood or tissues for immunization has often been tried since 1916, but the danger of inducing thereby an attack of typhus fever could never be completely removed. No satisfactory process could be obtained by him by which virulent typhus material could be so delicately adjusted that its immunizing properties might be retained and its disease-producing power eliminated.

That resistance might be achieved by the use of dead micro-organisms was indicated from the experiments of Spencer and Parker on Rocky Mountain spotted fever, first reported in 1925. They employed the ground viscera of infected ticks, the *Rickettsiae* in which were killed by phenol. Such vaccine proved successful in preventing or moderating attacks of spotted fever. The only available effective method of immunization against typhus in use to 1930 and later was that of Weigl, as previously described; but it was cumbersome and not practical for mass inoculations, since the contents of 50 to 100 lice sufficed for the immunization of only one person and the inoculated insects had to be fed for a week or more on immune individuals to obtain the blood necessary for a good yield of micro-organisms. A simple and reliable method was therefore desirable, especially for interepidemic control of typhus fever.

A high concentration of the infective agent in an antigen was considered by Zinsser, as by others also, a matter of first importance to produce stanch immunity. If he could reduce the resistance of an inoculated animal, he might obtain a rich harvest of micro-organisms. Accordingly the rat was chosen as the experimental animal, and several ways of decreasing its natural resistance to murine *Rickettsiae* were devised: by deficient diet, by benzene poisoning and by exposure to roentgen rays. In the end irradiation proved most efficacious. The murine micro-organisms injected intraperitoneally in rats which were powerfully irradiated in advance resulted in a few days in a yield of as much as 15 cc. from each animal of thick suspensions of *Rickettsiae*. Such material, formalized, induced a high degree of resistance as well as of antibody titer, as has already been mentioned. The method has been used in its original form and with certain modifications by Castaneda in Mexico and by Veintemillas in Bolivia, but since the European typhus micro-organisms, contrary to the murine strain, fail to multiply in such prepared rats, the procedure is not applicable to the prevention of classic typhus fever.

Other ways of increasing the yield of *Rickettsiae* were then investigated, and the choice fell on tissue cultures. Nigg and Landsteiner had already shown in 1930-1931 that growth can be obtained and kept virulent by inoculating normal tunica vaginalis or other tissues of guinea pigs and placing them in a tube containing Tyrode's solution and guinea pig serum, and

Kligler and Aschner in 1934 demonstrated that such formalized cultures can induce an immune response in animals, provided a sufficient dosage is used. These findings were confirmed by Zinsser and Macchiavello in 1936, who also substituted mouse embryo tissue for guinea pig tunica with success. Still another method was followed by Zia in Zinsser's laboratory, namely cultivation on the chorioallantoic membranes of developing chick embryos. Both murine and European typhus micro-organisms were successfully grown in this way.

The yield of micro-organisms by these procedures was still not as high as was desired for the purpose of practical mass immunizations, so another was sought. In 1939 Zinsser, FitzPatrick and Wei announced the preparation of so-called agar-tissue culture medium, which is a test tube medium made up of agar in Tyrode serum (horse, beef) on the surface of which is gently laid minced infected tunica. Later it was found that cultures begun in tunica tissue could be transferred to mouse or chick embryo tissue, and the latter could be employed as inoculum on the agar slanted medium. It may be said at this point that this method also proved satisfactory for the cultivation of rickettsial organisms other than those of typhus and, in addition, of certain viruses (FitzPatrick, 1938-1940). However, in spite of favorable reports of the immunizing capacity of agar-tissue culture vaccines (e. g. Zia, Pang and Wu in 1940) both in animals and in man—in the latter judged by the production of a positive Weil-Felix reaction—this method was further modified to obtain a still heavier growth of *Rickettsiae* for the preparation of a more potent vaccine.

The final modification came about through the employment of the yolk sac technic for the production of enormous numbers of *Rickettsiae*. The method was first mentioned as practical for cultivation of large quantities of the European typhus micro-organism by Barykine and his collaborators in 1936. It was developed to a high degree of efficacy and usefulness not only for different strains of *Rickettsiae* but also for other infective agents as well in 1938-1940 by Cox—formerly my associate for several years. The technic is simple, yet ingenious, and consists of the inoculation of suspensions of micro-organisms through the air-sac end into the yolk of a five or six day incubated fertile hen's egg. Cox reported that yolk sac suspensions of spotted fever and endemic typhus are, as a rule, from one hundred to one thousand times more infective than mammalian tissues or other tissues of the developing chick embryo. Consistently good immunizing vaccines have been prepared from the infected yolk sac material (phenolized and formalized) not only for European and endemic typhus but also for Rocky Mountain spotted fever. From a practical point of view the method is valuable since, if all the embryonic tissue of two infected eggs is used, as much as 550 cc. of vaccine can be produced, or, if a still more potent vaccine made from yolk sac alone is desired, then fourteen inoculated eggs suffice to make 85 to 100 cc.

Now to obtain the largest numbers of *Rickettsiae* by the simplest means, for practical immunization, Zinsser, Plotz and Enders recently, just before Zinsser's death, combined the agar method and the Cox egg technic in a special way. That is, minced embryonic tissue or macerated yolk sac removed from eggs on the fourth day after infection is used to inoculate large quantities of normal minced chick tissue from 10 day old embryos. The tissue thus infected is distributed in large amounts

on the surface of the agar placed in large flasks. It is estimated that 1 liter of vaccine sufficient to immunize three hundred persons can be produced in a week by one bacteriologist with two assistants.³

Apart from the vaccine of Cox and of Zinsser, Plotz and Enders, there is still a third, now being produced in Mexico by Castaneda: one that is made up of rat lung infected with the murine strain and which has been shown to be actively immunizing. Since *Rickettsiae* of European typhus do not multiply to any satisfactory extent in rats, the latter vaccine is limited in its use, although Castaneda states that sufficiently large amounts give an immune response against classic typhus fever. Now (1940), however, Durand and Giroud have prepared a formolized mouse-lung vaccine against this latter disease, especially in its experimental form.

The stage is now set for a trial of the immunizing materials in the field, and it is understood that tests of the yolk sac and of the combined agar-tissue culture-yolk sac preparations have already been undertaken in certain parts of Europe. In the background of the scene is the present war, accompanied by winter and epidemic typhus fever, so that the issue between the inoculations and their preventive effects may be defined. An expectant world awaits hopefully the outcome.

V. HIS ACHIEVEMENT

I have attempted to follow the course of Zinsser's work along the path of his researches on typhus fever during the last decade. It was no easy task, primarily because of the extent of his own labors and of those of his associates. In my search through the literature I have perhaps overlooked some references or have been compelled by limitation of time to omit others. However, I believe I shall have succeeded in my efforts if I have shown how Zinsser and his associates helped to bring about an orderly classification of the typhus group of rickettsial diseases and how he, with patient persistence and with steadfastness of aim, strove toward that goal which becomes clear to one who studies the record: the prevention of the disease. To this end he devoted himself "heart and hands." The tragedy is in this: he was not spared to see his desires fulfilled, but his work has helped to lead us to a high level of hope in the ultimate success of the prevention of typhus fever.⁴

Sixty-Sixth Street and York Avenue.

3. In this and in Cox's yolk sac methods, the growth of *Rickettsiae* is checked by morphologic examination. For this purpose the staining procedure of Dr. Attilio Macchiavello, developed in Zinsser's laboratory, is used. This is a rapid, superior stain not only for these but for other micro-organisms and for protozoa.

4. For references the reader is referred to the articles by S. B. Wolbach, Henry Pinkerton, J. E. Gordon and Hans Zinsser in *Virus and Rickettsial Diseases*, Cambridge, Mass., Harvard University Press, 1940, pp. 789-907.

Tuberculosis in Young Women.—As long as reliable mortality statistics for tuberculosis have been known, young women have always been more prone to die of tuberculosis than have their young brothers or older sisters. While the general death rate from tuberculosis has steadily fallen, the death rate among young women has also decreased, but at a slower rate. The fact remains that tuberculosis is prevalent enough, particularly among young women, to warrant, in the opinion of many authorities, a tuberculin test on all pregnant women. Treatment of tuberculosis has advanced so rapidly in recent years that, with early recognition of the condition in pregnancy, it is possible in many cases to bring the baby through safely with no danger to the mother. —National Council for Mothers and Babies, quoted in National Tuberculosis Association Clip Sheet, February 1941.

PELLAGRA AND THE PUBLIC HEALTH

A DIETARY SURVEY OF KENTUCKY MOUNTAIN FOLK IN PELLAGROUS AND IN NON-PELLAGROUS COMMUNITIES

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Certain facts about pellagra are now clearly established. There is no longer any doubt as to the fact of cure and none about the method. As far as each person with the disease is concerned, the cause is faulty diet; cure is accomplished by correcting the diet or by the use of nicotinic acid in addition to diet.¹

Simple as these procedures may be, there continues to be a considerable amount of pellagra in certain regions, either because of the relapse of former patients or because of the appearance of new ones. The addition of small amounts of nicotinic acid to an unimproved diet has not been found to restore complete health. Where the most extensive trials have been made with nicotinic acid, physicians are unwilling to rely on this alone because of the appearance of other deficiencies, viz., beriberi and riboflavin deficiency.²

The complete eradication of pellagra is intimately bound up with so many factors which determine the scale of living that merely prescribing nicotinic acid or recommending a good diet is not effective.³

In any given community where pellagra has been endemic, questions of food habits, food supply, living habits and money are all involved in the control of pellagra.⁴ With so many things to improve at about the same time, one wonders where to begin. A general survey in a community that has gone through the process of overcoming pellagra might indicate the successful remedy, if all pertinent conditions, both before and after the bringing of the disease under control, could be known. To our knowledge, no such before and after studies have been made and reported from the United States—none, especially, since the discovery of the beneficial effects of nicotinic acid in the treatment of pellagra. However, we have had occasion to observe two adjacent mountain areas in Kentucky; one where pellagra continues to be endemic and another where pellagra has been endemic but is now rare. A dietary survey of these two areas is the basis of this study—as a substitute for the before and after studies just mentioned.

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Dr. D. D. Turner and the public health nurses Mrs. T. Baker and Mrs. Z. Hale, of the Perry County Health Department, and the staff of the Frontier Nursing Service assisted in conducting this survey. The results of the survey were tabulated by Miss G. Weeks, statistician of the Frontier Nursing Service, Wendover, Ky.

1. Spies, T. D.; Cooper, C. H., and Blankenhorn, M. A.: The Use of Nicotinic Acid in the Treatment of Pellagra, *J. A. M. A.* **110**: 622-627 (Feb. 26) 1938.

2. Spies, T. D.; Bean, W. B., and Ashe, W. F.: Recent Advances in the Treatment of Pellagra and Associated Deficiencies, *Ann. Int. Med.* **12**: 1830-1844 (May) 1939. Spies, T. D.; Vilter, R. W., and Ashe, W. F.: Pellagra, Beriberi and Riboflavin Deficiency in Human Beings, *J. A. M. A.* **113**: 931-937 (Sept. 2) 1939. Sebrell, W. H., Jr., and Butler, R. E.: Riboflavin Deficiency in Man, *Pub. Health Rep.* **54**: 2121-2131 (Dec.) 1939.

3. Kooser, J. H., and Blankenhorn, M. A.: Pellagra of Kentucky Mountain Folk: Ambulatory Treatment with Nicotinic Acid, *J. A. M. A.* **112**: 2581-2584 (June 24) 1939.

4. National Emergency Council Report on Economic Conditions of the South, 1938. Sandels, Margaret R., and Grady, Eunice: Dietary Practices in Relation to the Incidence of Pellagra, *Arch. Int. Med.* **50**: 362-372 (Sept.) 1932.

The two areas have a number of things in common. They have the same geographic location, the hills of southeastern Kentucky. They have for the most part a similar population, native white Americans resembling each other in speech, habits and modes of living. The one community is rural, with the chief occupation farming, while in the other the people reside in small urban communities, so-called coal camps. The medical facilities available to the coal camps consist of the camp doctor and the public health department. The rural group is cared for almost entirely by the Frontier Nursing Service.

The region in which pellagra is endemic is located in Perry County, where a pellagra clinic⁵ has been in progress for the past twenty-four months.³ Since most of the attendants at the clinic are from the families of miners, there is an apparent relation between the coal-mining industry and the disease. To date the records indicate that there is a direct association between the low periods of coal operations and increases in the incidence of pellagra. One camp, which was not operating, had more patients than the other camps, which were working part time.

The inoperative camp was selected for investigation as an example of an endemic area. It is impossible to state the exact incidence of pellagra in the camp, because

TABLE 1.—General Information About Families

	Rural Area	Coal Camp
Number of families studied.....	330	93
Percentage of total families in each area.....	24	100
Size of family.....	6.49	5.3
Number of landowners.....	179	0
Percentage of families owning land.....	54	0
Median number of acres owned by landowners	20.2	0
Cash income per month per family.....	\$18-\$10	\$35.50
Percentage of families owning:		
Work animal	47	2
Cow	79	9
Chickens	87	26
Hogs	73	25

there has been no physician stationed there since the mine closed. We do know, without any effort at case finding, that 13 pellagrins attend the treatment clinic from the camp—that is, 13 among 493, or 2.6 per cent.

The nonendemic area is that in which the Frontier Nursing Service operates. At the time of our survey there was no patient in it known to have pellagra. A diligent search for pellagra has revealed 2 cases in the past three years, with a total of 4 cases during the resident period (eight years) of one of us in this area. Despite the fact that it is impossible to procure information about the incidence of disease or even a reliable death rate, we have learned from former physicians in this area that pellagra had been prevalent from 1914 to 1931. This opinion is shared by Dr. R. L. Collins, a consultant at the pellagra clinic in Perry County and formerly the resident physician of the Frontier Nursing Service.

The questionnaire which was used in making the survey was arranged to show the foods consumed per day per week. The families interviewed were asked to indicate the frequency with which they consumed available and desirable foods during the week of the survey. The rate of consumption was recorded to show whether the given items were eaten daily, every other day or less often during the week. This method was

5. The nicotinic acid used in the clinic at the present time is furnished by the Winthrop Chemical Company, New York.

chosen because it was impossible to obtain accurate weights and measures of the food consumed. Since we know that families of restricted means tend to minimize the fact that they have little to eat, information was also obtained to show the sources of the food. We had to secure data pertaining to acres under culti-

TABLE 2.—Home Production and Proportion of Certain Food Supplies

	Rural Area	Coal Camp
Gardens		
Percentage of families with gardens.....	98	87
Percentage with fall gardens.....	53	5
Corn		
Percentage of families who planted corn.....	93	59
Average acreage planted.....	6.5	*
Median total yield.....	57.9	10.1
Median utilized yi.....	47.5	10
Potatoes		
Percentage of families with potato crop.....	89	30
Median utilized yield.....	10.2	5.4
Home canning		
Percentage of families who canned.....	93	80
Median number of quarts canned.....	140	99.8
Beans, dried		
Percentage of families who dried beans.....	44	50
Median number of bushels dried per family.....	1	0.8
Hogs butchered per year		
Percentage of families who butchered.....	61	13
Average number of hogs butchered per year.....	2	1.4

* Reared land for garden crop and corn crop averaged 1.6 acres.

† "Utilized yield," i. e., yield for the families' own use after corn rent was deducted, since many of the families were sharecroppers or paid rent in corn for the privilege of using land owned by some other person.

vation, crops, livestock, gardens, purchasing habits and family income. The survey was conducted during February, March, April and May of 1939 (rural, February, March and April; coal camp, April and May). The late winter and spring months were selected because that period conforms to the low diet season of the year. This applies particularly to the rural area, since there is likely to be a shortage of the fall foods laid by, a scarcity of fresh foods and little opportunity for cash income from labor. In the coal camp there had been a prolonged low diet season for the past eighteen months prior to the survey, since the mine had not operated for that period of time.

In the rural area 330 families (24 per cent) were questioned from an approximate total of 1,400 families who are registered with the Frontier Nursing Service. Thirteen district nurses, each of whom cares for about 100 families, were given a set of instructions with the questionnaires and asked to fill in the schedules of

TABLE 3.—Comparative Consumptions of Milk and/or Eggs

	Rural Area	Coal Camp
Percentage of families having milk and/or eggs:		
4 or more times per week.....	90	47
1 to 3 times per week.....	8	29
Not at all.....	2	24

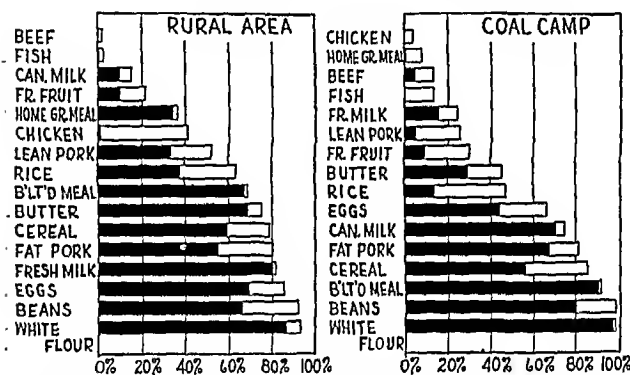
the first 25 families visited in their regular work. The village in this area, one of 313 inhabitants, was excluded because the population is not entirely rural. In the mining area two nurses from the Perry County Health Department were given similar forms for the survey of the entire coal camp of 93 families. The nurses who conducted the surveys were familiar figures in the respective areas and completely en rapport with the families.

The general information obtained is given in table 1. The relative value of cash income is obvious from this

table. In the coal camp the chief source was unemployment insurance. The majority of the families (66 per cent) subsisted on this income with meager sources of noncash income. In the rural area the chief source of cash income was government work agencies, which gave assistance to 49 per cent of the families. Although there were more families in the rural group than in the coal camp without cash incomes, these families were able to till a little land and to keep some livestock. While these assets are negligible as sources of cash income, they are valuable as food assets.

Data on home production and preparation of certain food supplies are given in table 2.

The food habits of the two groups are shown in the chart, which indicates the daily-weekly rate of foods consumed. While these data pertain only to the week prior to the interview, they may be viewed as a cross section of the respective diets for the given season. The economic level of the two groups would hardly permit any appreciable degree of variation. In general, the farmer eats more home-produced foods, while the miner consumes more store foods. The fairly uniform consumption of fat pork, beans and corn meal is indicative of dietary habits common to both areas. It was



Data on comparative diets, showing percentages of families having the food indicated. The black columns indicate consumption one to three days a week; the white columns, consumption four to seven days a week.

found that 90 per cent of the families in the rural area had pork, 46 per cent having both lean and fat, 34 per cent having fat only and 10 per cent lean only. This compares with 87 per cent of the families in the coal camp who had pork, 19 per cent having lean and fat, 62 per cent fat only and 6 per cent lean only. The prohibitive cost of beef accounts for the infrequent consumption of this food in both areas. There is a marked difference in the consumption of milk and eggs. The principal type of milk used in the rural area is fresh cow's milk, with an average daily yield for the milking period (nine months) of 4 to 6 quarts. In the mining area canned milk is most often used, principally in infant feeding. As a source of food for the entire family, the amount of canned milk consumed is negligible as compared with the amount of fresh milk available and used in the rural area. (This statement has been substantiated by interviews with local merchants.) The amount of eggs used depends more on the home supply; hence the farmer with a few hens will have more eggs to use than the miner who must buy eggs. The greatest variations in the diets were found in comparing the consumption of fresh milk and eggs (table 3).

Pellagra appears to be endemic in the coal camp because the majority of the families there do not have pellagra-preventive foods, such as fresh milk and eggs.

Conversely, the absence of pellagra in the rural area can be explained because the diet of the people there contains these items.

An explanation as to why the rural area no longer shows endemic pellagra is more difficult to achieve. This is especially so since there have been an increase in the population, a decrease in timber values and in the productivity of the soil and unusually long periods of drought affecting the crops. However, with the advent of the Frontier Nursing Service in this community there have been general changes which may have contributed to the present condition. This organization has an active obstetric-public health program which takes into account the interrelation of health, food and disease. There has been a decrease in the incidence of infectious diseases, in the general debility caused by intestinal parasites and in advanced malnutrition caused by faulty feeding. As regards maternal health, antepartum training teaches the mother to use a limited dietary to its fullest extent. The child welfare program is conducted in accordance with accepted pediatric principles. Rural preventive pediatrics is necessarily a slow process, but the effectiveness of such a program is reflected in the increasing demands made on the staff in behalf of babies and children. Parents now solicit information about adequate feeding, immunizations and the proper growth of their children. In individual families food emergencies have been met by the Frontier Nursing Service. The organization has also helped in procuring outside assistance when food emergencies have affected the entire population.

The nutritional advantages of families with incomes exceeding \$500 per year have been reported by Stiebeling and Phipard.⁶ It is significant that the diets of the lowest income groups studied by them contained but the minimum requirements for health. They pointed out, moreover, that purchasing habits vary with the purchaser's knowledge of foods. Since the mining group in our study earns less than \$500 annually, the presence of pellagra is not surprising. However, with the rural group—a similar low income group but one without pellagra—other factors, such as food values and health, become significant. The staff of the Frontier Nursing Service in the rural area studied has been instrumental in effecting a more desirable state of health, no small part of the improvement having been due to the staff's continued emphasis on foods. It is likely that a greater discrimination in the use of foods available for consumption has been of importance in the decrease in the incidence of pellagra in this area.

In our study, the role of vegetables and green which may be produced from a garden was not determined for the diet survey was done at a time (early spring) when neither group had garden produce, either fresh or canned.

SUMMARY AND CONCLUSIONS

For the purpose of understanding how a community gets rid of pellagra, we have studied, by means of a food survey, two adjacent neighborhoods in the mountain counties of Kentucky and have considered many of the complex factors that determine the diets of the people. As to economic status and food habits these two groups are very similar; but the one which got rid of pellagra has gardens, cows and chickens, and the one which still suffers pellagra has only insignificant gardens and the local grocery stores as sources of food.

6. Stiebeling, Hazel K., and Phipard, Esther F.: Diets of Families of Employed Wage Earners and Clerical Workers in Cities, Circular 507, United States Department of Agriculture, Home Economics Bureau, January 1939.

There is not much difference in consumption of the pellagra-producing diet—i. e., both groups eat corn meal and fat pork, in about equal amounts. In the consumption of pellagra-preventing foods there is a significant difference, in that the group now free of pellagra eats more fresh milk, lean pork, eggs and chickens.

The change of dietary practice that apparently has prevented pellagra has come about mainly as a result of a long campaign of instruction in the health-sparing value of foods, and not by any economic betterment.

THEOPHYLLINE MONO-ETHANOLAMINE

A CRITICAL STUDY OF ITS USE IN THE TREATMENT OF ASTHMA AND OTHER ALLERGIES

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AND

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LOS ANGELES

The introduction of a new drug or reemphasis of an old one in the therapy of asthma or other allergic conditions carries with it a grave responsibility. It is unfortunate, and often costly to the patient, to create false hopes regarding a remedy which has only a limited application or which may be actually dangerous to some of these sufferers. A large number of our patients have commented as follows: "I have tried everything that has been recommended to me, and I have spent hundreds of dollars but obtained little or no relief." Another trend of their comments is to the effect that the first two or three doses of many preparations afford magical relief, after which the beneficial response gradually or precipitously disappears. They designate this as "wearing out" the medicine, a condition probably differing somewhat from the typical development of tolerance that occurs only after long use of the remedy.

These limitations and responsibilities have been our guide in this study, which has extended over a period of from twenty to twenty-four months. We hope that this has been sufficiently long to temper our enthusiasm with a healthy skepticism and to negative the factor of temporary relief just mentioned.

Drugs of the xanthine series, especially caffeine, have long been recommended for use in conditions such as "heart disease, dropsy, migraine and opium poisoning."¹ Preparations of caffeine have been found useful as cardiac and cerebral stimulants as well as for cardiac dyspnea. Its effectiveness is by no means limited to the last mentioned condition as it may be equally beneficial in a patient with typical allergic asthma. Not a few patients have discovered that a cup of hot black coffee may afford relief from asthma although sympathomimetic drugs may have failed. When a larger dose of caffeine is required, the citrated form, or the alkaloid, has been used. Occasionally a patient may require hypodermic medication with caffeine with sodium benzoate from 0.24 Gm. to 0.5 Gm. (3¾ to 7½ grains). This has been effective in some cases that were temporarily "epinephrine fast." A well known pharmacologist² suggested that theophylline would

undoubtedly be more satisfactory than caffeine. His timely suggestion furnished the first stimulus which led to our present study.

A second step was the introduction of theophylline mono-ethanolamine (theamin, Lilly) which provided a stable, highly soluble compound for oral or parenteral use. That our study represents a new use for this drug is shown by the following list of therapeutic indications given in a circular published by Eli Lilly & Co.:³

(1) Diuretic action; (2) myocardial stimulation; (3) dilating action on coronary vessels, giving rise to improved circulation in the heart muscle, and (4) relief of pain in angina pectoris, coronary thrombosis and similar conditions.

Theophylline is conspicuously absent from the lists of agents to be employed in asthma as published in many current textbooks on allergy, as well as in those of pharmacology. The recent medical literature likewise contains few references which bear directly on our problem. A portion of an article by Greene and his associates⁴ dealt with the use of a theophylline compound in the treatment of asthma. Apparently eleven patients had true allergic asthma and possibly the remaining five represented a different type of paroxysmal dyspnea. While the dose used by these workers and the method of administration (intravenously) are not at all comparable to our protocol, it is of interest to note the marked effectiveness of theophylline. Their results demonstrate its value in at least two types of asthma. They throw some light on the mechanism, as they demonstrated that subjective relief may be obtained with little or no immediate improvement in vital capacity.

Brown⁵ used successfully an identical dose (0.48 Gm.) in a case of acute circulatory failure which was rapidly approaching a fatal termination. Subsequently, this was used to control the patient's asthma when epinephrine failed to do so. The author makes a timely suggestion that half this quantity be used when given to a patient for the initial dose. We would extend the reduction to a still smaller fraction of the original dose.

A brief review of the pharmacology of theophylline (1-3 dimethylxanthine) and related drugs seems to be indicated if one is to evaluate our results. It is said to (1) stimulate the psychic areas, and the respiratory, vasomotor and vagus centers, (2) increase ease of muscular contraction, (3) lead to vasodilatation by a direct action on the vessels (this combines with the cardiac stimulation to quicken the circulation) and (4) lead to diuresis from the interaction of several factors. Sollmann⁶ reviews in considerable detail several articles relative to the action of caffeine on respiration. There is some evidence that it may relax bronchial spasm, although the major emphasis is on the central action "by stimulating the respiratory center to greater effort." Little mention is made of theophylline in this connection, but in general its action seems to be quite similar to caffeine and probably is more intense. Among the unpleasant side actions of effective doses of caffeine and of theophylline are mentioned palpitation, insomnia, nausea, vomiting, headache, vertigo and restlessness. The latter drug is said to be more active than caffeine or theobromine in producing a diuresis. The blood

3. Lilly's circular "Diuretics," with special mention of theophylline mono-ethanolamine (theamin).

Aided by a grant from Eli Lilly & Co., Indianapolis.
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1. *Borland's Medical Dictionary*, Philadelphia, W. B. Saunders Company, 1939.

2. Dr. Paul Hanzlik, professor of pharmacology, Stanford University Medical School: Personal communication to the authors, July 1934.

4. Greene, J. A.; Paul, W. D., and Feller, A. E.: The Action of Theophylline with Ethylenediamine, *J. A. M. A.* **100**: 1712 (Nov. 29) 1937.

5. Brown, G. T.: Aminophylline in Asthma, *J. Allergy* **10**: 64 (Nov.) 1938.

6. Sollmann, Torald: *A Manual of Pharmacology*, ed. 5, Philadelphia, W. B. Saunders Company, 1937.

flow and the filtration pressure in the renal vessels are improved by these drugs. The response is modified in degree by the amount of filtrable liquid in the body; hence diuresis is less evident in the normal than in the edematous person.

METHODS

The patients used for this study are drawn from two distinct groups. One group (112 patients) has a high ratio of Jews, of Latins from the Old and especially from the New World, of Negroes and of several other racial types. Their mental, physical and economic levels are relatively low. Preexisting pathologic changes, often not directly concerned with their clinical allergy, present a definite handicap to the complete control of their symptoms. Pseudo-allergy is more common than true allergy. The other group (forty-one patients) is practically the opposite type. The presenting complaints are often the only deviation from a physical norm. Their ability to cooperate in the evaluation of therapeutic agents is much higher. A greater proportion of this group is sensitive and probably a correspondingly large number are therefore true allergic individuals.

From each group only the more severely afflicted were selected for our series. No one who obtained satisfactory relief from specific or other antigens, from sympathomimetic or other palliative drugs, was included in our series. Those patients with less severe clinical problems do not, of course, represent a critical test of the action of any drug. In view of the previous emphasis on the action of theophylline on the circulation, some might assume that beneficial results in asthma are through this mechanism. We have considerable evidence, namely age "scatter," in the two series which tends to refute this theory. Until recently all patients under 12 years of age were ineligible for the county hospital clinic; circulatory dysfunctions are, of course, much more frequent in older persons. In spite of this atypical preponderance of those in the older age group in the clinic, and the opposite trend in our private patients, there is little difference in the average age in the various subdivisions of these two groups.

We have defined the present illness or duration of symptoms to be the total time which has elapsed since the first attack. During this interval some have had symptoms rather infrequently while others, namely the greater proportion of the clinic patients, have had some symptoms practically every day unless effectively treated. One might assert that the total duration is the factor which determines the degree of damage to the circulatory apparatus. This in turn might be a function in the effectiveness of theophylline compounds. We believe that the data presented in the accompanying table will help to answer these and many other obvious questions.

In the management of any allergic or other chronic condition, the patient's physical, medical and economic interests are best served by adherence to the following pharmacologic axiom: Always employ the smallest effective dose of the least potent agent that will accomplish the desired results and repeat only when the symptoms and safety factors justify such repetition. Few would consider the use of maximum doses of an opiate to control the pain in an early malignant condition. They would, quite properly, insist on a trial of less drastic analgesics and reserve the opiates for the late and more severe manifestations. We believe that

allergic patients should likewise be treated conservatively. All too frequently the physician who sees a patient with asthma, even though it is of recent origin, orders a syringe and needle and starts the patient on a regimen of self medication with epinephrine. One may prescribe maximum doses of some other drug or another physician may advise the use of mixtures containing two, four or more drugs, any one of which, if given alone, would control symptoms. Such a mixture may be "worn out" by the patient as rapidly as would any single ingredient of it, but now all contained therein have lost their effectiveness. When a single tablet or capsule contains the maximum safe dose, it may have advantages from the standpoint of the manufacturer, as the patient's first concern is prompt relief. Undoubtedly such an amount also requires less effort on the part of the physician, as it is easier to prescribe a single unit than to teach the patient to employ from one to several smaller doses.

The recent history of ephedrine is interesting in this connection. The earlier workers advised the use of 50 mg. (three-fourths grain), repeated every four to six hours. Rather dramatic results were obtained at first. The reported failure to develop a tolerance to the drug was undoubtedly due to the fact that each dose contained several times the amount needed (at first) for clinical relief. Tolerance was developing, and in some quite rapidly, but was not evident as long as one effective unit remained. Unpleasant side effects prevented any increase in the original quantity. We believe that as large a dose as 50 mg. is rarely required, nor should its use be permitted. The routine ingestion of this at any stated interval is likewise open to criticism until such a schedule can be shown to be indispensable. The introduction of 8 mg. (one-eighth grain) doses of ephedrine, especially when this is combined with a sedative such as 16 mg. (one-fourth grain) of amytal, marked a distinct advance in therapy. If one has been correctly advised how to use these smaller doses, as good results, with almost no unpleasant side effects, may be obtained with one or two such tablets as with from six to three times this amount of ephedrine. If tolerance to these small doses should develop, one has considerable flexibility before the upper and safe limits are reached. In effect, the patient thus titrates the dose he needs at the time; if the dose is only 8 mg. he does not take two or five additional, but unnecessary, doses, as he would if the units were 25 mg. (three-eighths grain) or the large one, namely 50 mg. One of us (L.) contributed much of the original data which demonstrated the practicability and real need, even in the adult, for these smaller doses.

A few trials with stock doses of theophylline monoethanolamine 0.1 and 0.2 Gm. (1½ and 3 grains) suggested that the problem of dosage with it was a counterpart of what we have described for ephedrine. The manufacturer was most willing to cooperate and soon provided us with 32 mg. (one-half grain) and 65 mg. (1 grain) capsules. The smaller are especially valuable for children and probably will be equally effective in those adults who have comparatively mild and readily controlled symptoms. It should again be emphasized that none of the latter were included in our series.

The method of giving the drug was identical with that described for ephedrine. A 65 mg. capsule should be taken to anticipate and prevent or abort

A Comparison of Age "Scatter" and Duration of Asthma in Relation to the Effective Dose of Theophylline Mono-Ethanolamine

Doseage.....	1 Grain			2 Grains			3 Grains			4 Grains			5 and 6 Grains			No Relief				
	Females		Males	Females		Males	Females		Males	Females		Males	Females		Males	Females		Males		
	Age, Years	Duration, Years	Average Age, Years	Age, Years	Duration, Years	Average Age, Years	Age, Years	Duration, Years	Average Age, Years	Age, Years	Duration, Years	Average Age, Years	Age, Years	Duration, Years	Average Age, Years	Age, Years	Duration, Years	Average Age, Years		
Sex.....	17	4	13	11	6	4½	10	4	37	11	16	3	22	17	28	10	32	0	31	1
	18	5	29	6	11	8	15	10	39	7	23	1½	24	5	35	4	32	11	43	10
	19	1	50	27	14	8	51	3	40	28	33	6	24	10	47	16	27	7	48	44
	26	2	63	8	19	19	55	13	48	16	34	11	27	4	52	17	32	8	50	7½
	31	2	64	3	23	1	55	15	01	43	38	15	30	19	67	14	35	7	62	0
	45	11	70	28	23	5	53	53	02	7	39	7½	36	5	58	7	51	44	63	8½
	55	5	..	..	30	0	59	7	63	8	44	1	38	½	59	25	..	..	68	10
	65	22	..	..	30	7	60	4	..	..	46	17	39	7	69	18	..	..	..	..
	64	15	..	..	30	12	60	19	..	..	51	7	39	10	..	..	..	..	..	..
	67	60	..	..	32	0	..	..	..	..	59	47	39	18	..	..	..	..	..	..
	71	10	..	..	39	20	..	..	..	..	60	6	39	27	..	..	..	..	..	..
	..	..	..	..	41	7½	..	..	..	..	61	8½	45	9	..	..	..	..	..	..
	..	..	..	..	43	11	..	..	..	..	64	15	56	13	..	..	..	..	..	..
	..	..	..	..	48	42	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	..	..	..	..	50	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	..	..	..	..	55	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	..	..	..	..	55	40	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	..	..	..	..	60	1½	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	..	..	..	..	67	57	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total patients.....	11	..	0	..	19	..	9	..	7	..	13	..	13	..	8	..	6	..	7	..
Average age.....	42.5 years	48.5 years	47.7 years	35.3 years	35.3 years	47.7 years	47.7 years	47.7 years	47.1 years	47.1 years	43.8 years	43.8 years	43.8 years	35.2 years	60.6 years	53.1 years	29.3 years	35.6 years	51.0 years	61.0 years
Average duration.....	12.5 years	15.5 years	14.2 years	15.2 years	15.2 years	14.2 years	14.2 years	14.2 years	18.6 years	18.6 years	11.1 years	11.1 years	11.1 years	11.1 years	13.9 years	22.4 years	15.0 years	9.2 years	18.0 years	18.0 years
Percent of total series	15.1	..	..	25.0	..	..	..	..	17.8	..	..	..	..	18.8	..	11.0	..	11.0	..	11.0
Percent sensitivity of those tested.....	31.0	..	..	40.0	..	..	..	..	11.0	..	..	..	..	35.0	..	31.0	..	15.0	..	15.0
Patients from Private Practice																				
	4	2	0	7½	19	17	28	6	36	2½	6	5	40	5½	..	..	12	3	5	3½
	24	1¼	9	7½	30	22	30	2½	37	2	22	15	71	7½	..	..	..	..	..	..
	30	25	56	11	31	1½	33	6	47	45	20	23	..	..	..	..	..	..	..	..
	38	17	60	5½	33	1	34	7	50	10½	28	7	..	..	..	..	..	..	..	..
	46	35	68	1¼	..	..	55	7	..	..	32	2	..	..	..	..	..	..	..	..
	52	42	..	..	..	..	28	32	..	..	..	..	..	..	..	..	..	..	..	..
	60	64	..	..	..	..	..	..	..	..	44	10	..	..	..	..	..	..	..	..
	73	18	..	..	..	..	..	..	..	..	50	1½	..	..	..	..	..	..	..	..
	..	..	..	..	..	..	..	..	..	..	53	31	..	..	..	..	..	..	..	..
	..	..	..	..	..	..	..	..	..	..	72	1½	..	..	..	..	..	..	..	..
Total patients.....	8	..	5	..	4	..	6	..	4	..	9	..	2	..	..	..	1	..	..	2
Average age.....	41.6 years	40.4 years	40.4 years	38.3 years	38.3 years	39.0 years	39.0 years	39.0 years	42.5 years	42.5 years	37.9 years	37.9 years	37.9 years	37.9 years	37.9 years	37.9 years	37.9 years	37.9 years	37.9 years	37.9 years
Average duration.....	28.0 years	28.0 years	28.0 years	10.4 years	10.4 years	10.1 years	10.1 years	10.1 years	13.0 years	13.0 years	11.6 years	11.6 years	11.6 years	11.6 years	11.6 years	11.6 years	11.6 years	11.6 years	11.6 years	11.6 years
Percent of total series	31.7	..	..	24.4	..	..	..	..	31.7	..	..	..	..	4.9	..	..	..	..	..	7.3
Percent sensitivity of those tested.....	80.0	..	..	70.0	..	..	..	..	83.0	..	..	..	..	100.0	..	..	..	..	..	50.0

symptoms. If in from twenty to forty-five minutes the desired result was not obtained, the dose was repeated and the titration continued to a maximum of six capsules. If, for example, four doses were taken in sequence on each of several trials with an interval of three or four hours after each titration, the scheme was modified as follows: Each series was begun with two capsules (0.13 Gm., or 2 grains); in a few cases a third capsule was needed within an hour, and in a rare instance a fourth was required after a similar interval. It is not uncommon to find that the dosage during the daytime is no more than a third or a quarter of that required at night. We have tabulated this factor and, more important yet, the average total dosage for periods of twenty-four hours. We found with theophylline mono-ethanolamine, as we had with ephedrine, that a reduction of from 60 to 80 per cent had been effected without sacrifice of clinical relief. This alone would be sufficient to justify the method used. To it one may add an equally important factor, namely the lessening of malaise, nervousness, lassitude and anorexia, which almost inevitably accompany the use of maximum doses of many drugs. These benefits—individually, and doubly so when considered together—make it mandatory to give no more medication than is necessary.

It may be contended that we are too academic. Why not use a stock item such as a 0.2 Gm. capsule? It is safe and will produce the clinical effect in a large number of those who would obtain relief by any scheme of titrating the dose. We asked ourselves that question and the patients supplied the answer. 1. Many found the first untoward symptoms from these larger doses a deterrent, and after such an experience they would reject a valuable aid because of these side effects. 2. A few might employ a dose of 0.2 Gm. every six hours, a total of four doses 0.8 Gm. (12 grains) each twenty-four hours without side effects. 3. When a smaller unit 65 mg. is used and is effective, the interval between these smaller doses may be as long as between the larger ones. This has been demonstrated to be true in many cases, and the total would then be only 0.26 Gm. (4 grains) in twenty-four hours. The significance of this small dose compared with a total three times as great needs no further emphasis. 4. If the patient obtained relief from doses of 65 mg. during the daytime (possibly taking one at 6 a. m., 12 noon and 6 p. m.) but required 0.13 Gm. or even a maximum of 0.2 Gm. for each of the night doses, the total would not exceed 0.4 Gm. (6 grains), 50 per cent only of what would be ingested were the 0.2 Gm. capsules used each time. This difference begins to assume still more convincing proportions when it is realized that this is a reduction of 12 Gm. (180 grains), or two-fifths ounce in a month. The advantage of a 65 mg. unit over the stock 0.1 Gm. capsule can likewise be shown to be in favor of the smaller doses. If 65 mg. is not sufficient but twice the amount is adequate, one would be forced to give 0.2 Gm. to obtain this amount if each unit contained 0.1 Gm.

RESULTS

In the table we have summarized the entire series of clinic patients and forty-one from private practice. These patients have been grouped on the basis of the amount of the drug required at each dose to control or prevent symptoms. Under such subheadings we have arranged chronologically, according to their age,

the female and the male patients. In the column adjacent to the age there is indicated the duration in years during which the patient has had intermittent or constant paroxysmal dyspnea. For each group the average age and the average duration have been determined, and the total percentage of those obtaining relief by the dose in question is indicated. In considering the figures for the county hospital patients, it must be kept in mind that until recently no person under 12 years of age was admitted to the clinic; hence the distribution in which a majority fall in the older age groups may be atypical. The close agreement in the average age of the patients, whether male or female and regardless of the series to which they belong, is of interest. If we had somewhat larger samplings in a few of the groups, the agreement might have been still closer.

Those patients included under the heading of "no relief" would undoubtedly be excluded from most series. A small portion of these had taken the maximum dose and then failed to obtain relief. Some had taken only 65 mg. and if the results were to them unsatisfactory they refused to cooperate further. In a few this dose had been used a number of times yet the patient had reported "no relief," although subsequently a long remission followed. In others a few unpleasant side effects deterred them from further trial. They preferred to resort to the more undesirable method, namely hypodermic medication with epinephrine. Those in whom maximum doses by mouth failed to give relief should not yet be classified under "failures" of the drug. It would be most desirable to employ intravenous therapy with much smaller doses. In a few instances such apparently refractory patients have been given the drug by this method. A solution containing approximately 25 mg. per cubic centimeter was employed; from 2 to 5 cc. has in every instance tried given prompt relief. We have attempted for months to get in contact with some of the remaining patients who had failed to obtain relief by the oral medication in order to determine whether they possessed actual refractoriness to this agent. We have no direct evidence to explain the relief from minute doses given intravenously when much larger ones by mouth, even though repeated every four to six hours during the day, have failed. The clinic series had only sufficient patients in the "no relief" group to justify summarizing the average age, duration, and the like as we had done for the other subdivisions. These data correspond rather closely to those for the patients included under the column showing relief from 4 grains. We feel quite certain that the number in whom the drug seemed to be unsatisfactory could be further reduced were it possible to get in touch with the patients more readily and to teach them to use this remedy correctly.

It is of interest to note that a significant number of patients, even though they are in the older age groups, have had their symptoms over a long period, which represents a major portion of their life. This seems especially true in the case of women. In summarizing the effectiveness as given in the table, it deserves special comment that approximately 77 per cent of the clinic patients obtained definite or complete relief from no more than 0.26 Gm. (4 grains). In a majority of these the number of doses was not in excess of from 0.13 to 0.26 Gm. in twenty-four hours and frequently when 0.26 Gm. was needed the total amount used might be no greater than would be the case had the smaller doses

been used. The latter, although effective at the time, might be required twice as often in order to maintain control. In the private patients approximately 88 per cent obtained relief from 0.2 Gm. or less. These differences, in favor of the latter series, are due in no small measure to the physical, mental and other differences pointed out earlier in the article, and in addition we have had considerably more personal contact with the private than with the clinic patients. All results, even in the latter group, were obtained by one or the other of us after many personal interviews. The period of observation extended over months to a year or more. In absolutely no instance in either series was any one other than one of us a party to obtaining these data. The patients were not aware of the nature of the remedy they were taking. They were not told it was a "new cure" nor were they in any way prejudiced as to the results that might be obtained. These factors are too often neglected, as they are most time consuming when large groups of patients are to be studied.

POSSIBLE MECHANISM OF ACTION

Many theories can be advanced to explain the action of drugs of the dimethylxanthine series. We have touched on some of these, and if the circulatory factor were the correct explanation we would anticipate that few such persons would fall in the group of true allergic patients. Since one of the criteria of the latter is the presence of skin test sensitiveness, we have indicated for each of the groups the ratio of sensitivity to stock allergens in those tested. In the larger series eleven of the total 112 patients were not tested at all or the tests were never completed. In many instances we exclude tests, as the evidence seems to point to some diagnosis other than true allergic asthma. Of the 101 tested, thirty-one patients (30.7 per cent) were found to be sensitive. In the series of private patients, seven of the total forty-one were not tested. Of the thirty-four patients studied, twenty-nine (85.3 per cent) were sensitive to stock allergens. In the private series, but not in the clinic group, those failing to react to the stock allergens were tested to their own house dusts. This method added three patients (8.8 per cent) of those tested to the sensitive group. Thus the result is that thirty-two of the thirty-four patients (94.1 per cent) were sensitive to stock or environmental allergens. In comparing this with the percentage of 30.7 for the clinic patients, one must deduct approximately 9 per cent from the private series for those who were dust sensitive—a factor which we were unable to determine for the clinic patients. One must keep in mind also that the clinic group represents the pseudo-allergic rather than the true allergic individual. Previous compilations of the percentage of sensitive patients at the clinic have never revealed more than 33 per cent in that category. The difference in these two series is not due to the differences in the allergen used, as they were identical. The reactions are evaluated in the same manner in the two groups. Such a wide variation between two series in the same community and under study by the same workers should serve to temper one's enthusiasm for the superiority of one's own particular method of preparation of allergens and the like. Variation in clinical sampling may account for wide discrepancies in results.

Let us return to a consideration of the relationship between the amount of drug required for relief and

the percentage of those sensitive. In the clinic all dosage groups except the third showed a higher percentage of sensitivity than the average (30.4 per cent) for the 101 patients tested. This would seem to be some evidence against a typical circulatory dysfunction being the primary etiologic factor.

A relatively small proportion of the total clientele at the allergy clinic of the county hospital are Negroes, yet this series includes seven of that race. Each is a female and is between 19 and 39 years of age. The youngest obtained relief from 0.13 Gm., and she is the only one who is sensitive. The oldest required 0.2 Gm. per dose. The five remaining are grouped in the "4 grain" (0.26 Gm.) group and represent 38.4 per cent of the total of thirteen females. This concentration of Negroes in one group is of considerable interest and may represent only a chance occurrence in sampling.

CONDITIONS OTHER THAN ALLERGY

We previously referred to the presence of complicating pathologic conditions, particularly in the clinic group. We have summarized these factors and here present a brief analysis of our data. Serologic or other evidence of syphilis in the clinic is rather uncommon, yet six (one Negro) of the total of 112 patients in this series were so classified. None had clinical syphilis and in only one did that condition appear to be even a secondary cause of the allergic symptoms. Five patients obtained relief from doses of 0.13 Gm. and one required 0.26 Gm.

Hypertension seems but rarely to be a sequela of bronchial asthma, although it may often be the cause of paroxysmal dyspnea indistinguishable from the other type of asthma. Since it is one of several circulatory abnormalities, it deserves special consideration. We included in this category only those patients with a constant systolic reading of 160 mm. of mercury or above over periods of from several weeks to months. Nine patients, seven of whom were 50 years of age or more, had hypertension. The one known to have had it the longest—and incidentally the oldest patient—obtained relief from 65 mg. of theophylline monoethanolamine. These patients were almost equally divided between the 1, 2 and 4 grain (0.065, 0.13 and 0.26 Gm.) and the "no relief" groups, the odd patient being in the second group. Such a distribution does not help to explain the mechanism of the action of this drug.

Although extensive pulmonary fibrosis is a definite handicap to any therapeutic agent, two patients with "miners' asthma" obtained relief with 0.26 Gm. or with 0.4 Gm. doses. Several additional patients had been miners of hard rock but unless x-ray examination of the chest substantiated a diagnosis of silicosis they were not so classified.

The relationship of blood eosinophilia to true allergy is still a moot question. We could not however ignore this factor, since a majority of the clinic patients had had a differential white blood count. Seven patients had one or more counts of from 6 to 15 per cent (average 10 per cent) of eosinophils. These patients were almost equally distributed over the several dosage groups. We have been unable to correlate these examples of increased blood eosinophilia with any factor which would be of value in differential diagnosis, in relationship to sensitivity, to severity of symptoms or to prognosis.

UNTOWARD EFFECTS INCONSPICUOUS

Some of the possible side effects were mentioned in discussing the pharmacology of the xanthine series. When a patient first employs a new drug, the secondary reactions may be more pronounced than at any subsequent use. The beneficial response may be decided, even though transient. In most instances in this series complaints followed only the first few doses. Occasionally the smallest as well as the largest quantity seemed to produce these sequelae. Disturbances of the gastrointestinal tract were the most common symptoms. These ranged from a sensation of gnawing in the epigastrium to nausea and occasionally to vomiting. The use of small amounts of food at the time the capsule is taken is usually sufficient to control this discomfort. Ten patients complained of nervousness and, if the medication was taken at night, insomnia resulted. These conditions are much less common than they are with effective doses of ephedrine. Tachycardia with or without other manifestations occurred in a few cases. The diuretic effect has been inconspicuous, only four patients having experienced sufficient discomfort to report it to us. In one of those it was severe enough to limit the use of the remedy. In passing and to correlate with the infrequent complaint of diuresis, one should note that no patient in either the clinic or the private series presented peripheral edema or other evidence of fluid retention. Several elderly men in the clinic group who had been unable to take ephedrine obtained relief with theophylline mono-ethanolamine and without disturbances of urinary function. One man was unable to take either drug in effective doses.

As a rule the sequelae soon cease to appear, and children as well as the least robust of the adults take the remedy without untoward symptoms. We have again interviewed a majority of the entire series because our first results were so favorable, and especially when compared to the effects of ephedrine. Our original impression has not been changed and the infrequency of these sequelae is in part due to the comparatively small doses we have employed.

UNEXPECTED THERAPEUTIC BENEFIT

As we interviewed these patients we tabulated all data which they supplied without regard to whether it referred to relief from paroxysmal dyspnea. It soon became evident that there were beneficial side effects not directly related to the control of asthma. Several reported a definite decrease in lassitude and fatigue, and shortly several reported a gain in weight which had not followed the use of other drugs. This could not be ascribed to a complete remission, as they were obliged to use theophylline mono-ethanolamine each day. One of these patients, a woman aged 47, had had severe vasomotor rhinitis, paroxysmal dyspnea and generalized eczema during the past forty-four years. These symptoms had been so severe for the past five or six years as to produce complete disability. Not only did she obtain relief from the respiratory symptoms but there was a definite improvement in her skin. Coincident with these beneficial results and the gain of weight she has returned to part time employment. Others volunteered the information that there was marked improvement in their nasal condition. This did not necessarily parallel the effect on the lower respiratory tract.

These incidental observations led us to make a few preliminary observations. The following comments are not presented as a completed study but merely to record some very definite trends. Conclusions should be withheld until further data have been accumulated. Detailed case histories would seem superfluous; hence we are presenting only salient points: A white girl aged 15 years had been under pollen treatment in our office for three or more years. There had been no complaints except acute and chronic nasal symptoms, and these had improved somewhat. Small doses of ephedrine (tablets of ephedrine and amytal previously mentioned) had helped somewhat but the marked nasal obstruction persisted. Radical antral surgery was done during the summer of 1939 with some temporary benefit. She was given theophylline mono-ethanolamine and for the past four months had obtained much relief with a 0.1 Gm. dose each morning and evening. On a few occasions it has been necessary to use a third capsule in the twenty-four hour period. This drug has controlled her nasal symptoms more effectively than all previous therapy combined.

Following such encouraging results, we recently have tried the drug on several additional private patients who complained of severe vasomotor rhinitis with or without paroxysmal dyspnea. One of these patients, a white man aged 24, a medical student, is definitely sensitive to practically every pollen to which he has been tested. Pollen therapy has been quite effective in controlling nasal and chest symptoms but the former were still troublesome. Theophylline mono-ethanolamine in doses of 0.13 Gm. not only relieved the chest symptoms but was so effective as practically to reverse the nasal symptomatology. He complained that his nose was too dry. A classmate of his aged 26 who had experienced only nasal symptoms was under pollen treatment with partial relief. Nasal symptoms became especially acute with the sudden onset of hot weather. A 0.2 Gm. capsule each morning and evening prevented symptoms. They were not aware of the nature of the remedy or of what results to expect; hence the observations are practically unbiased.

Urticaria (with or without angioneurotic edema) is one of the most baffling conditions for which the allergist is consulted. He is expected to find a specific etiology when in all probability one rarely exists. If the indications for dietary restrictions are conspicuous, they would have been followed without the patient's consulting him. The allergic approach has not yielded satisfactory results. Many forms of therapy have been tried and none have survived the test of time. Even epinephrine is not always a panacea. Because of the multiplicity of agents that have been recommended for therapy, the allergist hesitates to add another to the list of "sure cures." Five patients, three females and two males, with urticaria and angioneurotic edema have been treated with theophylline mono-ethanolamine. A dose of 65 mg. and occasionally from 0.13 to 0.2 Gm. from two to four times in the twenty-four hour period has been more satisfactory than ephedrine and amytal tablets or than epinephrine 1:1,000 from 0.3 cc. to 0.6 cc. taken at intervals of from two to four hours throughout the day and night. We have had insufficient time to study a larger series, but these results have never been duplicated by any other therapeutic agent.

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SUMMARY AND CONCLUSIONS

1. The value of theophylline in certain types of edema as a myocardial stimulant and in dilating coronary vessels is widely accepted. It has found but infrequent use in paroxysmal dyspnea. Its combination with mono-ethanolamine provides a satisfactory agent (theophylline mono-ethanolamine) for oral or intravenous use.

2. A total of 153 patients has been treated. These patients come from two sources and are composed of individuals of widely varying types. Those from the Los Angeles County General Hospital (112 patients) experience the more severe asthma. A higher ratio of them are nonsensitive and present other conditions typical of the nonallergic patient. The smaller group (forty-one patients) is a counterpart of the first and a large proportion represent the uncomplicated allergic problem. Each patient was included because of refractoriness to conventional therapy. The striking differences in physical, clinical and other characteristics help to explain the variations presented in the table and in subsequent discussions.

3. The maximum quantity of drug administered by mouth represents little more than the minimum recommended for its action on the heart and circulation. The minimum doses, found effective in a majority of our patients, are smaller than any previously available on the market. Amounts so small as from one tenth to one fifth of the conventional dose for intravenous use may be effective even though symptoms are most severe.

4. Each patient titrated the required dose and the amounts tabulated for each represent the upper limits. This effective quantity may need no increase after long periods—even a year or more—of use.

5. Approximately 10 per cent of the patients are classified as obtaining "no relief." Several of these did not complete the trials, others failed to return for observation and a few reached our maximum doses of 0.4 Gm. without benefit. A sampling of the latter furnished evidence of the efficacy of smaller (from 40 mg. to 80 mg.) doses given intravenously. Many of those classified as obtaining "no relief" are not, therefore, truly refractory to the drug.

6. Untoward reactions were inconspicuous and tended to be limited to the first few doses. Approximately 15 per cent mentioned transient nervousness or gastrointestinal symptoms. A small amount of food taken with the drug kept the latter at a minimum.

7. Unexpected beneficial side effects were observed. A few trials indicated that these represented real trends rather than coincidental results. Nasal symptoms, with or without asthma, and such refractory conditions as urticaria and angioneurotic edema have been controlled by this drug. These are preliminary impressions and may not necessarily represent final conclusions.

8. In every instance patients have been kept in ignorance of the type of drug and of its potential response. All observations, an average of at least five interviews per patient, were made and recorded only by the authors.

9. Because of the evident usefulness of theophylline mono-ethanolamine in small doses by mouth—and of smaller amounts intravenously—and the slow development of tolerance even to the smaller quantities, we anticipate that this drug will be a valuable adjunct if not a substitute for ephedrine in the treatment of asthma.

THE EFFECTIVENESS OF THE XANTHINE DRUGS IN THE TREATMENT OF ANGINA PECTORIS

I. AMINOPHYLLINE

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There is abundant experimental proof that the xanthines theobromine and theophylline, as well as other members of the series, are potent vasodilators of the coronary arteries. These drugs have been shown to possess this property in human¹ and canine² heart-lung preparations: in the intact anesthetized dog by measuring the outflow from the coronary sinus,³ and in the intact anesthetized and trained conscious dog by using a thermostromuhr⁴ on one or another of the coronary arteries. Levy and his associates⁵ have demonstrated this property of the xanthines inferentially and reported the favorable influence of these drugs on patients with attacks of angina pectoris induced by breathing an atmosphere containing only 10 per cent oxygen. In a recent report Gilbert, Fenn and LeRoy⁶ have confirmed this observation. Experiments soon to be published by Gilbert and me demonstrate that the mortality after experimental occlusion of the coronary arteries is 25 per cent in dogs receiving these drugs and 75 per cent in the untreated controls. Theobromine and theophylline are not known to exert any other action on the heart and its blood vessels than to cause an increase in the volume of the coronary blood flow. Any improvement in cardiac function after the use of these drugs is believed to be secondary to this action. The increased blood flow is thought by most investigators to be due to vasodilatation, the result of a direct action of these xanthine drugs on the vessel wall.

There is a considerable difference of opinion among the more articulate internists, and for any report that appears confirming the value of these drugs an article may be found denying that they have any activity.⁷ The standard textbooks, too, do not agree in their estimates of the worth of these preparations. For these reasons it is felt that a suitably controlled series of patients in whom the effectiveness of one of the xanthines was studied should be reported.

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7. Brown, M. G., and Riesenman, J. E. F.: The Value of Purine Derivatives in the Treatment of Angina Pectoris, *J. A. M. A.* **100**: 256-258 (July 24) 1937. Massel, H. M.: Clinical Observations on the Value of Various Xanthines in Angina Pectoris, *J. Lab. & Clin. Med.* **24**: 380-391 (Jan.) 1939. Gold, Harry; Kwit, N. T., and Otto, Harold: The Xanthines in the Treatment of Cardiac Pain, *J. A. M. A.* **108**: 2173-2178 (June 26) 1937. Master, A. M.; Jaffe, H. L., and Dack, Simon: The Drug Treatment of Angina Pectoris Due to Coronary Artery Disease, *Am. J. Sc.* **107**: 774-782 (June) 1939.

This study was undertaken as part of an attempt to discover new members of the xanthine family of greater value, if possible, than the familiar preparations of theophylline and theobromine. For this purpose it was necessary to have a group of patients whose conditions and characteristics were intimately known to me. Throughout the investigation, which is still in progress so far as the new drugs are concerned, the

TABLE 1.—Distribution of Age, Sex and Color

Age Group	Women		Men	
	White	Negro	White	Negro
20 to 30.....	0	1	0	0
31 to 40.....	2	3	0	8
41 to 50.....	1	13	2	9
51 to 60.....	1	6	6	10
Over 60.....	0	0	4	1
Totals	4	24	12	28

new compounds were compared with a well known drug. In this instance the known drug was aminophylline (theophylline with ethylene diamine, U. S. P.). Animal experiments on the new xanthine drugs are described elsewhere.⁸ Subsequent reports on the clinical efficacy of these new drugs will follow the present paper, which deals solely with the activity of aminophylline.

THE CLINICAL MATERIAL

The 68 patients considered in this report were all seen by me in the cardiac clinic of the Municipal Social Hygiene Clinic of Chicago. Most of the patients attending this clinic have positive serologic reactions for syphilis, although the majority in the cardiac clinic do not have syphilitic heart disease. In the last thirty months I have observed about 1,600 patients with some sort of cardiovascular disease, and among this number the condition of 110 patients has been diagnosed as angina pectoris. The 68 patients discussed here were selected for this report because during the period of study none of them showed other symptoms of cardiac disease severe enough to warrant the use of other cardiac drugs. Table 1 summarizes the data on sex, age and color of the group. Table 2 is a presentation of the etiologic type of heart disease that was presumed to cause the angina pectoris. Table 3 shows the length of time that the patients were under observation. It should be emphasized that only 50 per cent of the subjects had syphilitic heart disease. The etiologic diagnoses were based on careful consideration of the clinical status, the teleroentgenogram of the chest and the electrocardiogram. Two meter roentgenograms of the chest were made of 80 per cent of the patients. The size of the heart—the cardiothoracic ratio—was from 40 to 50 per cent in 27 per cent of the group, from 50 to 60 per cent in 52 per cent and more than 60 per cent in 21 per cent of the patients. Electrocardiograms were obtained on 85 per cent of the subjects. These were considered normal—that is, showing no more than slurring of the QRS complex or left axis deviation—in only 13 per cent. The commonest abnormality of the remainder was low voltage or inversion of the T waves. Socially, the clientele of this clinic is composed mainly of persons on relief, WPA workers, demimondaines and persons in the very low income groups. The majority, thus, could not afford to pay for medical care and

deserted the clinic only when they were too sick to walk in or when they were hospitalized by a county physician.

DIAGNOSTIC CRITERIA

Angina pectoris was the unqualified diagnosis for all persons who complained that discomfort—as actual pain or a sense of tightness or constriction in the thoracic region (dolor pectoris)—was experienced (a) on exertion, (b) with emotional excitement, (c) after meals when excited or on exertion or when the food was particularly indigestible, (d) particularly with exertion in cold weather and (e) as an accompaniment of nocturnal dyspnea. The diagnosis was considered more probable if the pain was clearly associated with sensations of fear or terror (angor animi). As a matter of fact, it is my custom to diagnose angina pectoris in patients who experience only this sense of fear or terror, although no such patient is included in this study. It is curious how frequently angor animi is neglected in discussions of angina pectoris, since it is apparent that often the pain is not very severe and that the pain alone probably would not impel the patient to seek medical advice.

Patients are often ashamed of the terror that accompanies anginal pain, and unless the mode of questioning is sympathetic the patient may not choose to discuss it. The location of the pain was not felt to be important as a criterion. In general, the diagnosis of angina pectoris was entertained when the pain was substernal, precordial or in the back. Whether the pain radiated to the abdomen, the neck or the right or the left arm was not considered a requisite for the diagnosis, although the last-mentioned radiation is the most typical. The quality of the pain, of course, varied greatly in each subject and from time to time in a given subject. In my practice any sensation that evoked the complaint “it hurts” was called pain. Many of the patients described the most excruciating sensations, but in the majority the discomfort was of less degree, and in many a sensation of tightness or constriction was the most frequent complaint. The duration of the pain was important as a diagnostic criterion. It was felt that pain lasting for hours or fleeting, lancinating pains, even if typically located, did not merit the designation of angina pectoris. The possibility that much of the pain under consideration might be aortic pain arose constantly and was dealt with with difficulty. Throughout the period of the study a serious effort was continually made to challenge the diagnosis of

TABLE 2.—Etiologic Diagnosis

Type of Heart Disease	Men	Women
Syphilitic.....	23	11
Hypertensive, arteriosclerotic.....	15	17
Rheumatic.....	4	3
Mixed.....	2	3

angina pectoris, and many patients were thus eliminated. The ones described here were resistant to this criticism throughout. The reader may well question why, of the 110 patients with a diagnosis of angina pectoris, but 68 were chosen for inclusion in this study. The reasons are simple: Many of the 42 not included reported to the clinic too irregularly to be of use in a study of this nature, or they were alcohol addicts, or they were not under observation long enough for fair trial periods with active drugs and placebos. Furthermore, this study is but one part of a larger study, and the patients included here are those who have

8. LeRoy, G. V., and Speer, J. H.: A Comparison of the Coronary Vasodilator Activity of Certain Alkyl Xanthines, J. Pharmacol & Exper. Therap. 69: 45-51 (May) 1940.

received or will receive the new drugs. During the period of time covered by this report, however, they were given only the active drug aminophylline.

DRUGS EMPLOYED

The dispensary of the clinic originally contained no drugs for the treatment of angina pectoris. For the purpose of this investigation aminophylline⁹ was

TABLE 3.—Time of Observation

Months	Patients
3 to 4.....	4
5 to 6.....	5
7 to 8.....	4
9 to 10.....	11
11 to 12.....	13
13 to 14.....	10
15 to 16.....	6
17 to 18.....	3
19 to 20.....	3
21 to 22.....	5
Over 23.....	4

supplied in special 0.2 Gm. (3 grain) sugar-coated tablets. A stock of like-appearing placebos was available. Several experimental batches of the newly devised xanthenes were similarly prepared and were used concurrently. The results of their administration will be described subsequently. These drugs were dispensed in envelopes and were always designated by number. Care was taken not to discuss with the patient the nature of the drug used. It was felt to be good practice to lead the patient to believe that all the drugs were good. For the management of congestive heart failure and fibrillation digitalis, salyrgan and 50 per cent solution of ammonium nitrate were at hand. A few sedative mixtures, the elixirs of phenobarbital and/or sodium bromide could be dispensed. Thus if a patient's symptoms or complaints could not be controlled with any of these drugs he drifted off to another clinic. It is worth mentioning that there were few who could not be adequately controlled.

METHOD OF THE STUDY AND RESULTS

The primary purpose of this cardiac clinic is therapeutic in the dual sense of rendering the patient either fit enough for antisyphilitic therapy or well enough to continue his ordinary activities. For this reason no rigid schedule of courses of active drug and placebo was adhered to. Nor was the dosage of the drug predetermined and strictly followed. The usual dose of aminophylline was 0.2 Gm. three times a day. If this amount did not control the discomfort 0.2 Gm. four or even five times a day was ordered. When 0.2 Gm. three times daily was satisfactory, a period of decreased dosage was ordered. It should be mentioned parenthetically that less than 10 per cent of the patients required more than 0.6 Gm. daily and that at one time or another about 20 per cent were comfortable with 0.4 Gm. daily. The subjects of the experiment were given sedatives, placebos or aminophylline as the initial therapy, the choice of medication depending on several factors: the severity of the symptoms, their duration and the amount of psychic distress that appeared to exist. Placebos and sedatives were seldom administered for a period longer than two weeks unless they were definitely beneficial; in such cases the diagnosis was scrutinized critically and all medication stopped to await a recurrence, if any, of the symptoms. The active

drug, on the other hand, was given for from four to ten weeks, the period of administration depending on the severity of the disorder, the efficacy of the drug and similar factors. Subsequently it, too, was discontinued or replaced by placebos or sedatives or by one of the experimental products as the patient's condition warranted.

In the remarks to follow concerning results, the unqualified word benefit is used to indicate that during the period of the use of the drug, or placebo, the subject experienced definite relief. This may have amounted to complete freedom from pain, but usually the patient reported a distinct lessening in the severity and frequency of the attacks. Only an occasional patient while taking aminophylline was unable to provoke anginal pain by any exertion of which he was capable. The usual result was that the amount of exertion or excitement that would invariably provoke pain before the use of the drug no longer did so, although stronger stimuli were able to cause attacks. Apparently unprovoked attacks—as at rest—were much less frequent while aminophylline was being taken. Moreover, when an attack did occur it was milder, there was less terror and it passed away more quickly. It is important to emphasize the fact that although complete freedom from anginal pain may be an ideal goal it is not a practical one. It is obvious that no therapy of any kind can possibly alter the amount of atheromatous change that exists in the coronary vessels or the amount of aortitis around their orifices. Any patient with angina pectoris due to coronary sclerosis unquestionably has a maximal possible coronary blood flow which may be achieved by complete relaxation of all peripheral resistance. It is fair to assume that this amount is smaller by a varying degree than the maximal possible flow through healthy, nonsclerotic coronary arteries. Thus any patient with angina treated by any satisfactory means may still experience pain with sufficient provocation. The important question in judging the efficacy of therapy is simple: Does the pain come as soon, or as severely, when the patient is taking the drug as when he is not taking it? Failure to appreciate this pathologic fact may seriously color judgment of a drug's use-

TABLE 4.—Summary of Results

Group	Benefit		Benefit, per Cent	Relapse		Relapse, per Cent
	Yes	No		Yes	No	
Initial sedative course.....	3	14	18			
Initial placebo course.....	2	10	17			
Initial aminophylline course....	51	8	79			
Secondary aminophylline course	18	6	75			
Later placebo course.....	..	..	..	50	12	72
No therapy.....	..	..	..	33	10	74
Later aminophylline course.....	116	26	81			
Secondary placebo course.....	3	10	23			

fulness, particularly if the critic of the drug considers it worthless unless complete freedom from pain is achieved.

The word relapse indicates, in a patient who has experienced benefit from an active drug, that the substitution of a placebo, a sedative (or, as in the studies to be reported, a less active drug), a reduction of the dose of the active drug or the discontinuation of therapy was followed by a return of symptoms. To put it more generally, the patient became uncomfortable. Usually this was serious enough so that the patient came to the clinic requesting some of the "other medicine" or

⁹ The xanthenes and the placebos were supplied by G. D. Searle & Co.

insisted that he had been given the wrong drug because the expected benefit failed to occur.

For ease of comprehension the results of this study of aminophylline are compiled in table 4.

One fourth of the patients were given initially a course of sedatives consisting of 0.06 Gm. of phenobarbital or 1.2 Gm. of sodium bromide daily. Of this group—designated in table 4 as initial sedative course—3 patients, or 18 per cent, reported benefit. This poor result from sedatives was not unexpected and may be attributed to the rigid effort made to exclude non-anginous patients from the series.

One fifth of the patients were given a course of placebos initially, and this group is designated as initial placebo course. Of these, 2, or 17 per cent, reported benefit. Here again the comment made about the non-success of sedatives applies. As a matter of fact, it is my custom to reconsider with great care any patient who reports a striking initial improvement in angina pectoris from sedatives or placebos. The condition of many patients with supposed angina who experienced such benefit was rediagnosed, and subsequent observation over a long period confirmed the correctness of the change.

The remainder of the 68 patients received aminophylline initially, in doses of 0.2 Gm. three times a day. Some of these were given an enteric coated tablet with no significant difference in the final result. This group, designated initial aminophylline course, reported benefit in 79 per cent. The 24 patients who had been given placebos or sedatives initially were then given aminophylline in the usual dose. Of this group, designated secondary aminophylline course, 18, or 75 per cent, experienced benefit. Of the 6 not benefited, 2 subsequently became more comfortable by taking from 0.8 to 1 Gm. daily. The difference between the results of the administration of the active drug and a placebo or a sedative in the initial course is striking and is, I think, significant of the effectiveness of aminophylline.

Depending on individual circumstances, the active drug was then given for varying lengths of time, usually for from four to ten weeks. In most instances after this period placebos were given, administration of the drug was stopped or an experimental product was substituted. At some time or another, placebos were given subsequently to 52 of the patients. This group, labeled later placebo course, reported a relapse in 72 per cent. Forty-three patients stopped taking drugs altogether for periods up to three months. Of this group, designated no therapy, 74 per cent experienced a relapse within three months.

After a relapse due to cessation of therapy had occurred or after a placebo had failed to give benefit, aminophylline was usually given. There were one hundred and forty-two instances in which this was done in the group labeled later aminophylline course. Of this group, 116, or 81 per cent, reported benefit. Thirteen of the patients who had had a relapse because of cessation of therapy were given placebos when they returned to the clinic for help. Of this group—called secondary placebo course—only 3, or 23 per cent, reported benefit.

SUMMARY

In a series of 68 patients with angina pectoris sedatives or placebos given initially or placebos given after a relapse were of benefit to 18, 17 and 20 per cent of the patients respectively. Aminophylline given initially, after the placebo course or after a relapse was reported as beneficial by 79, 75 and 81 per cent of the patients

respectively. Of the patients who had benefited from aminophylline, substitution of placebos or no drug at all provoked a relapse in 72 and 74 per cent respectively.

COMMENT

The results just described are better than those usually reported in studies of the treatment of angina pectoris with the purine drugs. There are probably several reasons for this which should be mentioned:

1. The group studied was homogeneous. In 50 per cent of the patients (i. e., those with syphilitic heart disease) the pathologic processes responsible for the bouts of coronary insufficiency could be visualized as involving only the proximal portions of the coronary arteries. Under these circumstances a lessening of the peripheral resistance in the coronary circuit by arteriolar vasodilatation should be not only possible but also efficacious.

2. The age distribution of the patients was favorable (table 1). Thirty-nine, or 57 per cent, of the subjects were less than 50, and only 5 were older than 60. Thus the group might be expected to contain relatively few of the type of patient with intense diffuse coronary sclerosis whose angina pectoris is known to be helped little by any medication.

3. Many of the patients were receiving their first medication for angina pectoris, and in the whole group only about one fourth had suffered from angina for longer than six months. Ten of the patients were taking tablets of glyceryl trinitrate when first seen. In all 10 the number of tablets required was greatly reduced by the use of aminophylline, and only 2 patients still take them. Neither one uses more than two or three tablets a week when he is taking the active drug.

4. It is believed that this study is both coherent and consistent because one observer made all the examinations and diagnoses and saw the patients continuously for the entire period. No injustice is intended when it is suggested that the poor results with xanthines reported by other workers may well be due to the fact that the patients were attended in hospital or medical school dispensaries with shifting personnel whose diagnostic acuity and criteria varied. It is certainly true that a clinic for persons with diabetes, for example, managed by a constantly changing staff varying in interest and experience will be less successful than a one man clinic. The same is undoubtedly true of a clinic for patients with angina pectoris. In this connection should be mentioned the psychologic attitude of the clinician toward the drugs in question. It is just as unfair in seeking a patient's evaluation of a drug to lead him to expect poor results as to lead him to anticipate good ones. I attempted to be as non-committal as possible, but discerning patients may well have seen my enthusiasm for these particular xanthine drugs.

5. Finally, the amount of aminophylline administered was, I believe, considerably greater than the doses usually prescribed. No patient was ordered to take less than 0.2 Gm. three times a day unless it was found that the smaller dose was as efficient as the larger one. Furthermore, there was no hesitation in ordering daily doses of 0.8 or 1 Gm. when a beneficial result did not occur.

CONCLUSION

Sixty-eight patients with angina pectoris were given aminophylline or placebos in varying amounts over a period of two years. In general, aminophylline bene-

fited 75 per cent of the sufferers. Placebos and sedative drugs were reported beneficial by about 20 per cent of the group. When patients who had been benefited by the use of aminophylline were given placebos or stopped taking the drug, about 80 per cent experienced a return of symptoms within less than three months.

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PRIMARY VIRUS PNEUMONITIS WITH CYTOPLASMIC INCLUSION BODIES

STUDY OF AN EPIDEMIC INVOLVING
THIRTY-TWO INFANTS, WITH
NINE DEATHS

JOHN M. ADAMS, M.D.
MINNEAPOLIS

The present report deals with a hitherto undescribed form of epidemic pulmonary disease occurring in newborn infants. Its peculiar symptomatology and pathology, as well as its epidemic character, clearly indicate the virus nature of its etiology. Characteristic cytoplasmic inclusion bodies were found in the bronchial epithelium in all fatal cases.

An increasing number of reports on the subject of atypical pneumonia or virus pneumonitis in man has occurred in the literature during recent years.¹ That of Goodpasture and his co-workers² alone, however, deals with virus disease of the lungs in infancy. These authors reported finding intranuclear inclusion bodies in the bronchial epithelial cells in 3 cases of postmeasles pneumonia and in 1 case of postpertussis pneumonia. The differences between these cases and those reported in the present paper are detailed under the heading Differential Diagnosis.

The 32 cases reported here occurred in rapid succession during the three winter months January, February and March 1937. Because of the epidemic nature of this outbreak of infection in the newborn nursery, the assistance of the Minnesota State Board of Health was enlisted for a thorough bacteriologic and epidemiologic study of the problem. Nine, or 28 per cent, of the affected infants died. Routine postmortem examinations were carried out in the department of pathology

of the university. Since the clinical features simulated those of epidemic influenza, fresh frozen specimens of lung tissue were sent to Dr. Thomas Francis Jr., of the Rockefeller Foundation, International Health Division, to determine the possible presence of the virus of that disease.

CLINICAL FEATURES

The characteristic clinical signs of the disease were cough, dyspnea, cyanosis and low grade fever. The relative frequency of these signs is shown graphically in figure 1. As indicated, the uniformity of the clinical picture in all cases observed was a striking feature of the epidemic. The temperature response varied considerably but was only moderate to low in the majority of the patients. With the exception of a few cases, the exact time of onset of the disease was difficult to determine. Sneezing and cough were the initial symptoms. At this early stage little if any elevation of temperature was noted. In a few instances cyanosis and respiratory distress were the presenting signs of illness. Listlessness and apathy were prominent symptoms. The cyanosis in many cases was extreme, involving the whole body of the infant. Comparatively long periods of apnea and associated bradycardia accompanied cyanotic attacks in the most severe cases.

Early in the clinical course fine rales could usually be heard over the chest, indicating involvement of the smaller bronchiolar system. The changes found on auscultation, however, were not as obvious as the other symptoms and signs would suggest. Evidence of dullness indicating consolidation was rarely found. It was practically impossible to determine by physical examination whether or not bronchiolitis or bronchopneumonia was present. Nevertheless, roentgen examination of the lungs confirmed the presence of bronchopneumonia in nearly all cases studied roentgenologically.

In those cases which terminated fatally death occurred soon after the establishment of fever. This was especially true among the 4 premature infants. Biphasic fever curves were observed in several instances (fig. 2). The febrile course lasted for as long as three to four weeks in some of the infants who survived. Cough likewise tended to persist. The average duration of illness was seven and six-tenths days in the fatal cases and fifteen and one-tenth days in those which survived. Recovery was complete without complications in the latter.

In order to illustrate more clearly the important features of the symptomatology, the record of 1 case is presented briefly:

CASE 12.—J. L. O., aged 3 weeks, was admitted to the University Hospitals from the Salvation Army Booth Memorial Hospital, St. Paul, on February 18 with an illness of two days' duration. The presenting symptoms were listlessness, cough and frequent attacks of cyanosis. There was a large amount of mucus in the nose and throat. Respiration was labored, with noticeable retraction of the intercostal spaces and sternum. Fine rales were heard throughout the chest; no evidence of consolidation was present on physical examination. The white blood cell count was 8,300 per cubic millimeter, with polymorphonuclear leukocytes constituting 32 per

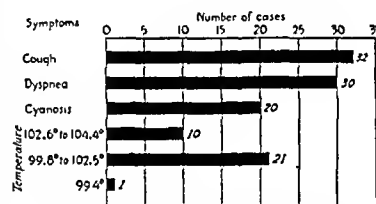


Fig. 1.—Graphic representation of the striking symptoms. A composite graph of temperature records is shown.

The photomicrographs were made by H. M. Morris, M.P.A. Presented before the Minnesota Pathological Society, Nov. 19, 1940. From the Department of Pediatrics, University of Minnesota Medical School.

1. These reports include:

- Allen, W. H.: Acute Pneumonitis, *Ann. Int. Med.* 10: 441 (Oct.) 1936.
- Bowen, A.: Acute Influenza Pneumonitis, *Am. J. Roentgenol.* 34: 168 (Aug.) 1935.
- Kneeland, Yale, Jr., and Smetana, H. F.: Current Bronchopneumonia of Unusual Character and Undetermined Etiology, *Bull. Johns Hopkins Hosp.* 67: 229 (Oct.) 1940.
- Longcope, W. T.: Bronchopneumonia of Unknown Etiology (Variety X), *Bull. Johns Hopkins Hosp.* 67: 268 (Oct.) 1940.
- Magill, T. P.: A Virus from Cases of Influenza-like Upper Respiratory Infection, *Proc. Soc. Exper. Biol. & Med.* 45: 162 (Oct.) 1940.
- Maxfield, J. K., Jr.: Atypical Pneumonia with Leukopenia, *Texas State J. Med.* 35: 340 (Sept.) 1939.
- Murray, M. E., Jr.: Atypical Bronchopneumonia of Unknown Origin, *New England J. Med.* 222: 565 (April 4) 1940.
- Remann, H. A.: An Acute Infection of the Respiratory Tract with Atypical Pneumonia: A Disease Entity Probably Caused by a Filtrable Virus, *J. A. M. A.* 111: 2377 (Dec. 24) 1938.
- Remann, H. A., and Stokes, J., Jr.: Epidemic Infection of Respiratory Tract in 1938-1939: Newly Recognized Entity, *Tr. A. Am. Physicians* 54: 123, 1939.
- Smiley, D. F., Showacre, E. C., Lee, W. F., and Ferris, H. W.: Acute Interstitial Pneumonitis: A New Disease Entity, *J. A. M. A.* 112: 1901 (May 13) 1939.
- Went, J. M., and Horsfall, F. L., Jr.: The Recovery from Patients with Acute Pneumonitis of a Virus Causing Pneumonia in the Mongolian, *J. Exper. Med.* 72: 593 (Nov.) 1940.
- Goodpasture, Auerbach, Swanson, and Cotter:
- 2. Goodpasture, E. W., Auerbach, S. H., Swanson, H. S., and Cotter, E. F.: Virus Pneumonia of Infants Secondary to Epidemic Infections, *Am. J. Dis. Child.* 57: 997 (May) 1936.

cent and lymphocytes 68 per cent. A roentgenogram of the chest showed an increase in markings on the lung along the right border of the heart. The observations were interpreted as consistent with bronchopneumonia of the lower field of the right lung. The febrile course is shown in figure 3, the highest reading for the day being the one recorded on the graph. The course was stormy for several days and was marked by frequent attacks of deep cyanosis, necessitating the administration of epinephrine and alpha-lobeline repeatedly. Three small transfusions were given. Oxygen and steam were administered constantly. The cyanotic attacks continued until February 29, but the general condition gradually improved. The patient was discharged on March 11, still coughing. A roentgenogram of the lungs on March 6 was interpreted as still showing areas of increased density in the region of the lower and upper lobes of the right lung, representing areas of pneumonic consolidation (fig. 4).

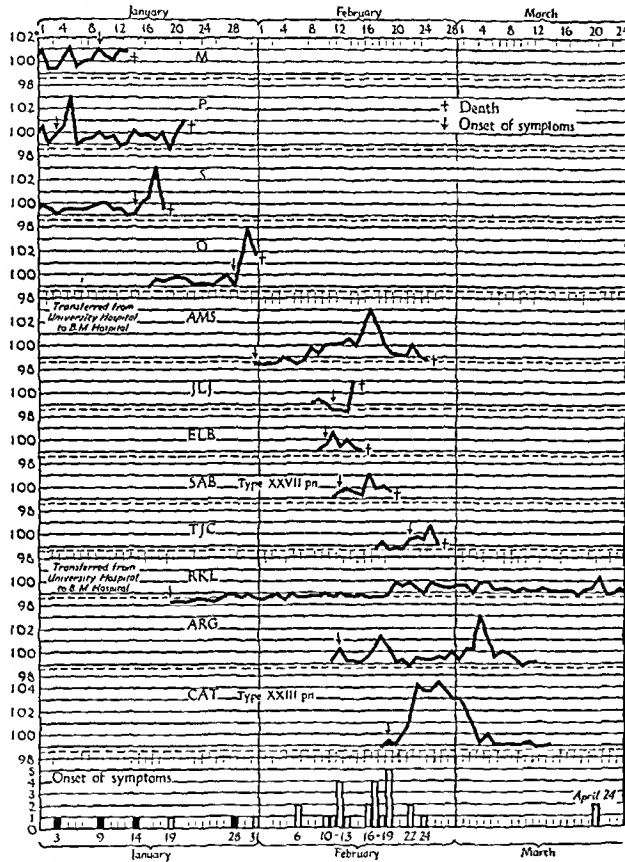


Fig. 2.—Temperature charts of the 4 premature and the 5 full term infants dying of the disease. The charts of 3 additional patients who survived are shown. Note biphasic temperature reactions in several instances. At the bottom of the figure is charted the day of onset of symptoms, the solid blocks indicating the premature infants, the light blocks the full term infants.

Roentgenograms of the lungs are shown from cases 13 and 32 in figures 5 and 6.

The complications observed in the series of 32 cases were 5 cases of otitis media and 1 of staphylococcal empyema. At necropsy 1 patient was found to have a congenital cardiac anomaly.

BACTERIOLOGIC CHANGES

The laboratory staff of the state board of health made cultures of material from the entire group of infants and from the mothers, nurses and attendants at the Booth Memorial Hospital on three different occasions, February 23, March 5 and April 27. Pneumococcus type XXIII was found in 4 cases and pneumococcus type XXVII in 3 cases. Mixed organisms consisting

mainly of gram-positive diplococci, streptococci and staphylococci were found in the cultures taken of material from the pharynx in nearly all cases studied. In addition to the aforementioned organisms, type XVII and type XVIII pneumococci were found respectively in the throats of two nurses, neither of whom was ill. Several cultures were taken of the blood of patients transferred to the University Hospitals. All were reported as sterile. Dr. Francis³ reported that his laboratory was unsuccessful in isolating a virus from the fresh lung material sent to him at the time of autopsy. In a recent communication he stated that the serum of the ferrets which were inoculated failed to show any antibodies capable of neutralizing influenza virus.

EPIDEMIOLOGY

The epidemic nature of the disease, the uniformity of symptoms and the common pathologic changes (including occurrence of cytoplasmic inclusion bodies in the bronchial epithelium) found in all 9 fatal cases strongly suggest that a single etiologic agent was responsible for the epidemic.

The characteristic contagiousness of virus disease, as well as the definite species and tissue specificity, is well illustrated by this outbreak. In the present epidemic a definite predilection for premature and young infants was evident. At no time was a mother, nurse or other attendant ill, although intimate contact existed at the onset of the epidemic at the Booth Memorial Hospital. The particular virus here involved seems to be adapted to epithelial tissues, especially those of the lungs in premature and full term infants.

The epidemic began in the premature nursery of the University Hospitals, where a most rigid technic is employed. The pediatric staff was unable to discover a break in the technic sufficient to explain the transfer of the disease to the newborn nursery of Booth Memorial Hospital. However, at the height of the disease at the University Hospitals, 2 infants (8 and 21) were transferred at different dates from the newborn nursery to the Booth Memorial Hospital. Both infants were noted to be coughing on admission to the latter. Isolation of all newly admitted patients is always maintained for a period of at least a week. In spite of this precaution, however, 2 more infants were noted to be coughing six days after the last admission. Approximately six days after the onset of illness in these 2 infants 7 more infants were noted to be ill. The height of the epidemic occurred five to seven days later, when 10 additional infants became ill. A curve of the occurrence of onset would appear to have its peaks approximately six days apart. (Note chart at bottom of fig. 2.) From these data, it would appear that the incubation period of this disease is about six to eight days. Further observations will need to be made, however, before this can be established with certainty.

The infants at the Booth Memorial Hospital were kept in small individual cribs separated by a distance of 3 to 6 feet. Three large wards were involved. A common room was used for bathing and feeding the babies, although separate equipment was used for each child. In nearly all cases the mother lived in the hospital and cared for her own child. Nevertheless, a graduate nurse was in charge at all times. All the infants were immediately isolated with the onset of the first symptoms, and special care was given by graduate nurses. Whenever possible, the most severely ill were transferred to the University Hospitals.

3. Francis, Thomas, Jr.: Personal communication to the author.

Two babies died at the Booth Memorial Hospital before transfer could be made, and 1 died shortly after admission to the pediatric service of the University Hospitals. These cases illustrate the severity of the disease and the rapidity with which it spread. The peak of the epidemic subsided in February, as will be noted in figure 2, but only after every infant at the Booth Memorial Hospital at that time had acquired the disease. The duration of the symptoms in a few cases was prolonged, as already indicated. This long course in some of the cases probably accounted for the occurrence of the disease in the 2 infants who were born in March and acquired the disease on April 24.

PATHOLOGY⁴

Gross Changes.—Although a brief account of the observations at autopsy accompanies each case report, a composite picture of the changes encountered is presented. The pleural cavities were clear in all cases except for the presence of unilateral empyema in 1 case complicated by a secondary staphylococcal infection. The lung tissue was congested with scattered nodular areas of pneumonic consolidation, many of which were hemorrhagic. Thick, turbid exudate was expressed from the bronchi. Cut sections frequently revealed hemorrhagic areas, and exudate could be expressed from the small bronchioles as well as from the bronchi. Hemorrhage occurred in the medulla of the adrenal glands in a number of the cases.

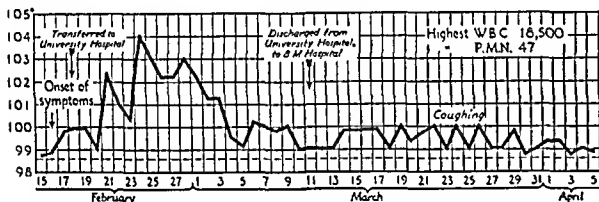


Fig. 3.—Temperature chart of J. L. O. (case 12) the highest reading for each twenty-four hour interval being recorded.

Microscopic Changes.—The bronchi showed necrosis and ulceration of the epithelium with cellular material and debris filling the lumen, composed preponderantly of sloughed epithelial cells rather than of the usual leukocytes. Patches of peribronchial infiltration filled largely with mononuclear cells were numerous. Atelectasis of intervening areas was a prominent feature of the picture. Polymorphonuclear leukocytes, lymphocytes and large mononuclear phagocytic cells were found in the alveolar spaces (figs. 7 and 8).

In addition to these changes, subsequent microscopic study revealed the presence of characteristic cytoplasmic inclusion bodies in the bronchial epithelial cells in all 9 cases (figs. 9 to 12).

No inclusion bodies were seen in the cells of the peribronchial mucous glands, although the adjacent columnar epithelium of the bronchus was found to contain many. In 5 cases the inclusions were found in the cells within the alveolar spaces (figs. 13 and 14).

The characteristic cytoplasmic inclusion bodies were found in epithelial cells only. Their locations are given in table 1. The cells containing the bodies occasionally appeared slightly larger than normal. However, most of them were found in the intact cells of normal size in the bronchial epithelium. The cytoplasm of the cells was sometimes vacuolated, and the body was often

found near the nucleus. With the hematoxylin and eosin stain the ground substance of the inclusions was homogeneous, staining bright red or acidophilic. There was a clear halo about the body in many places. Small vacuoles could be made out within the ground substance of some of the bodies.

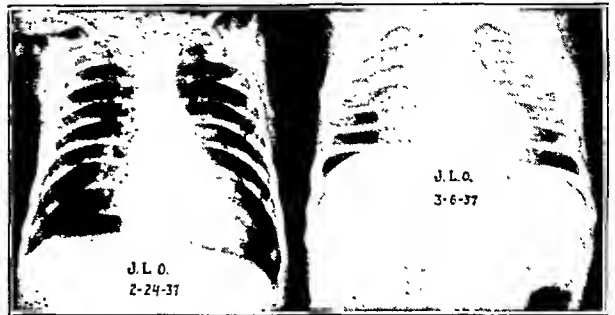


Fig. 4.—Chest of J. L. O., showing changes as seen on February 24 and March 6, interpreted as patchy bronchopneumonia.

The size of the bodies varied from 3 to 6 microns in diameter, and they were often elliptic. In most instances only one body was found in a cell. (Figures 10 to 15 are illustrations of the inclusion bodies.)

The ease with which the inclusion bodies could be found tended to vary inversely with the length of time that the patient lived. In patients dying shortly after the onset of symptoms, the inclusions were most numerous and evidence of inflammatory reaction least. When secondary bacterial invasion had made much headway, as in the case of A. M. S. (case 8), who lived twenty-five days and in whom multiple pulmonary abscesses were found at autopsy, the bodies were found only after a long search. Among the premature infants, 3 of whom died rather suddenly, the inclusion bodies were found with relative ease. This was true also of J. L. J. (case 6), who died a few hours after admission to the University Hospitals.

A careful search of the epithelial structures of the kidneys and livers of all infants who died failed to reveal the presence of inclusion bodies. Cytoplasmic bodies resembling the inclusions found in the bronchial epithelium were seen in large granular cells in the medulla and zona reticularis of the adrenal glands in several cases (fig. 15).

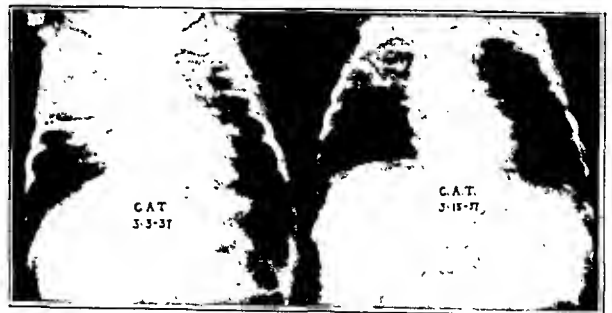


Fig. 5.—Chest of C. A. T. (case 13), showing pneumonia of the upper lobe of the right lung; the slow resolution will be noted.

The prominent pathologic features were ulceration and sloughing of the bronchial epithelium, with a rather high degree of atelectasis in all cases. The edema, hemorrhage and swelling of the surrounding parenchymal tissues seemed to cause a collapse of the bronchiolar system. The mucous exudate was copious and

4. Biologic studies of the living virus, as well as further pathologic and comparative studies of the inclusion bodies, will be reported by Dr. R. G. Green, Dr. C. A. Evans and me in the near future.

widespread throughout the bronchial system and contained some pus cells, but for the most part it seemed to be epithelial slough and amorphous material. Cytoplasmic inclusion bodies with definite characteristics were found in the bronchial epithelium in all cases, and in a few instances in the alveolar epithelium as well.

DIFFERENTIAL DIAGNOSIS

There are two disease pictures, most probably due to viruses, from which the present group of cases should be differentiated. The characteristic features of differentiation are listed in table 2. The first condition is so-called inclusion disease. The second is a form of secondary virus pneumonia described by Goodpasture and his co-workers.² "Inclusion disease," which has no distinctive clinical or pathologic features, has been found at necropsy in association with a wide variety of diseases largely confined to the period of infancy. The only pathologic change is noted in the large macrophage wandering cells which have been found to contain intranuclear and cytoplasmic inclusion bodies. Farber and Wolbach³ in a recent review noted these cells to be within the epithelium-lined spaces. They were found in the salivary ducts, the bile ducts, the

renal tubules, the acini of the thyroid gland and the ducts of the pancreas, as well as in the epithelial structures of the lung. "No distinctive pathologic process was found in these organs, the large cells often being found in otherwise normal appearing areas."

In 1939 Goodpasture, Auerbach, Swanson and Cotter² described characteristic intra-

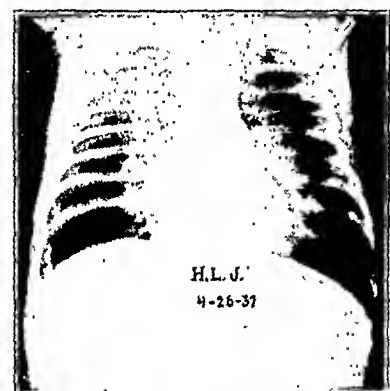


Fig. 6.—Chest of H. L. J. (case 32), showing typical changes of patchy bronchopneumonia.

nuclear inclusion bodies occurring almost exclusively in epithelial cells of the lungs in infants dying from pneumonia secondary to whooping cough and measles. Five cases occurred sporadically between 1931 and 1938. Associated with the intranuclear inclusions there was a characteristic necrosis and ulceration of the bronchial mucosa.

The differential points in the epidemic disease herewith described are (1) the clinical picture of primary pneumonitis, (2) its occurrence in epidemic form, (3) the presence of characteristic cytoplasmic inclusion bodies in the bronchial epithelial cells in 100 per cent of the infants dying from the disease and (4) the definite and distinctive pathologic picture.

As far as I have been able to ascertain, this syndrome has not been described heretofore.

REPORT OF CASES

The following brief reports concern 9 fatal cases and 6 cases in which recovery occurred. Because of their similarity to the latter, 17 other cases in which recovery occurred are not included.

CASE 1.—M., a baby boy, was admitted to the University Hospitals November 15 because of premature birth. The weight

was 1,060 Gm. and the temperature 98.6 F. The highest body weight was 2,290 Gm., attained on the fifty-seventh day of life. The patient's course was uneventful until January 8, at which time coughing and sneezing were first noted. On January 9 he had frequent attacks of cyanosis. These continued along with cough and respiratory difficulty until January 13, at which time the baby died, in spite of the administration of oxygen and other forms of therapy.



Fig. 7.—Section showing destruction and slough of lining epithelium of a bronchus (case 1). Slightly reduced from a photomicrograph with a magnification of 65 diameters.

Autopsy.—The lungs weighed 40 Gm. Their posterior portions were moderately atelectatic. On section they showed congestion and contained numerous raised or nodular areas. The smaller bronchi were found partially obstructed by turbid mucoid material. Microscopically this was found to consist largely of desquamated epithelial cells, mononuclear leukocytes, red blood cells and amorphous material. However, the most striking feature of the microscopic picture was the occurrence of characteristic cytoplasmic inclusion bodies in the epithelial cells of the bronchi. Some of the cells within the alveolar spaces likewise showed these bodies.

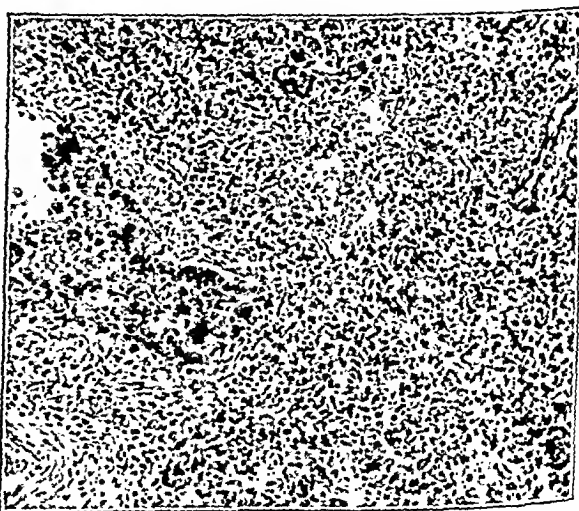


Fig. 8.—Section showing atelectasis, scattered hemorrhage and collapse of a small bronchiole with epithelial exudate filling lumen (case 6). Slightly reduced from a photomicrograph with a magnification of 270 diameters.

CASE 2.—P., a baby girl, was born on December 12 and weighed 750 Gm. Her general condition after birth was critical for a few days, with a temperature ranging from 99.4 F. to 101 F. Thereafter, however, her course was satisfactory until the time of her final illness. The highest weight attained was 1,350 Gm. On January 3 her color was more dusky than usual.

5. Farber, S., and Wolbach, S. B.: Intranuclear and Cytoplasmic Inclusions ("Protozoan-Like Bodies") in the Salivary Glands and Other Organs of Infants, *Am. J. Path.* 5: 123 (March) 1932.

Two days later her temperature was elevated to 103 F. but returned to normal the next day. During the following two weeks mild attacks of cyanosis recurred at intervals. On January 20 cyanotic spells became frequent and severe. During the next two days periods of apnea were observed, and respirations became decidedly irregular. Administration of oxygen, blood transfusions and other forms of treatment were without permanent benefit. The infant died on January 22. (The temperature record is given in figure 2.)

Autopsy.—The right lung weighed 20.6 Gm. and the left 14.8 Gm. There were scattered areas of atelectasis in both lungs, most noticeable in the left. There was no gross evidence of bronchopneumonia. A subarachnoid hemorrhage was found in the left occipital lobe measuring 2.5 cm. in diameter. No abnormalities of the brain substance were noted. Microscopic examination of the lungs revealed many alveoli with thickened walls. The blood capillaries were engorged. Alveoli occasionally contained epithelial cells, polymorphonuclear leukocytes and cellular debris. There were areas of atelectasis with little associated reaction. The most important pathologic changes occurred in the bronchi, which showed areas of necrosis and sloughing of the epithelium. Cytoplasmic inclusion bodies were numerous in the detached, as well as in the intact, bronchial epithelial cells. A few were also found in alveolar cells.

CASE 3.—S., a baby boy, was born at the University Hospitals December 14 and weighed 1,750 Gm. On January 14 sneezing



Fig. 9.—Section showing three cytoplasmic inclusion bodies in the bronchial epithelium (case 3); $\times 1,800$.

and cyanotic spells were noted. On January 15 the highest rectal temperature recorded was 100.2 F. There were several cyanotic attacks on this day. On January 16 cyanosis became severe and dyspnea was more apparent. Continuous administration of oxygen and frequent injections of epinephrine and alpha-lobeline, together with whole blood given intramuscularly, were the treatments employed. The temperature rose to 103 F. on the next day. The infant died on January 18. (Figure 2 records the temperature curve.)

Autopsy.—Grossly there was a slight degree of pulmonary atelectasis. The lungs weighed 54 Gm. On section there were numerous small irregular nodular areas scattered throughout both lungs. Microscopic examination revealed that some of the bronchi contained mucus and a few to a moderate number of leukocytes. In general, however, there was no definite bronchial obstruction. Atelectasis was patchy in distribution. No pneumonic exudate of the usual type was observed. However, the epithelial cells of the bronchi were found to contain many cytoplasmic inclusion bodies.

CASE 4.—O., a baby boy, born December 12, weighed 1,830 Gm. At birth a loud systolic murmur was heard over the precordium and cyanosis was present. On January 30 he was ready for discharge, weighing 2,575 Gm. On February 1 he began to sneeze and cough. The cough gradually increased

in severity. The temperature on the following day rose to 102 F. and on February 3 reached 104 F. At this time roentgenologic examination of the chest showed evidence of early bronchopneumonia. The infant died on February 4. Shortly before death serosanguineous material oozed from the nares and mouth. (Figure 2 records the temperature curve.)

Autopsy.—The right lung weighed 40 Gm. and the left 36 Gm. The right apex was the site of pneumonic infiltration. The

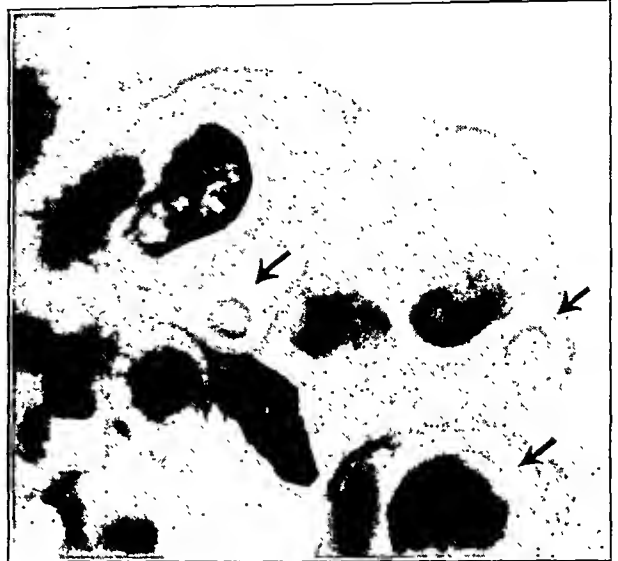


Fig. 10.—Section showing three cytoplasmic inclusion bodies in bronchial epithelial cells. Note small vacuoles in the body on the right and halo about inclusion bodies (case 2); $\times 1,800$.

entire lower lobe of the left lung was likewise consolidated, with dark red patches showing through the pleura. The bronchial epithelium was necrotic and sloughing. Collapse of the small bronchioles with a mononuclear reaction and hemorrhage was present. Further microscopic study revealed cytoplasmic



Fig. 11.—Section showing cytoplasmic inclusion body in the bronchial epithelium. This cell is in the base of an invaginated portion of the bronchus next to the mucous glands. Note mucus in the lumen (case 6); $\times 1,800$.

inclusion bodies in the bronchial and alveolar epithelial cells. The adrenal glands weighed 7.5 Gm. and showed medullary hemorrhages.

CASE 5.—S. A. B., a full term baby girl, was born January 11 at the Booth Memorial Hospital. The course was uneventful until February 12, at which time apathy, anorexia and attacks

of coughing, associated with dyspnea and cyanosis, were noted. She was transferred to the University Hospitals on February 16. Examination revealed her to be acutely ill, with a dusky color. Coughing occurred frequently. The nose was filled with a ropy, mucopurulent exudate. The pharynx was red. The respirations were dyspneic. Deep retraction of the sternum and intercostal spaces occurred with each inspiration. Fine rales

that the vocal cords were in a position of abduction until an effort was made for inspiration, when the glottis opened adequately. When respirations became more regular there was a good airway in the larynx and the cords remained abducted. Oxygen and steam were administered continuously and dextrose was given intravenously. In spite of such treatment, death occurred nine hours after admission. (The temperature record is charted in figure 2.)

Autopsy.—The right lung weighed 45 Gm. and the left 30 Gm. There was posterior hypostatic pneumonia of both lungs. Microscopic examination of the lungs showed areas of extensive peribronchiolar infiltration, predominantly mononuclear. The alveoli in certain areas contained phagocytes in which droplets of fat could be detected. The bronchioles were partially filled with cellular exudate. There were no areas of pneumonic consolidation found. Further microscopic study revealed characteristic cytoplasmic inclusion bodies in the bronchial epithelium and also in the alveolar cells.

CASE 7.—E. L. B., a full term baby girl, born November 13 at the Booth Memorial Hospital, weighed 7 pounds and 15½ ounces (3,615 Gm.) at birth. Physical examination revealed her to be cyanotic, with a loud to and fro cardiac murmur heard over the entire precordium. The patient gained weight and the cyanosis persisted. A roentgenogram and an electrocardiogram confirmed the impression of congenital heart disease. The present illness began on February 11 with coughing. On February 12 cyanosis was increased, with severe coughing and listlessness. Dyspnea also accompanied this picture. The patient died on February 16, having had little deviation in temperature. (The temperature record is charted in figure 2.)

Autopsy.—The heart showed enlargement of the right auricle with an incomplete septal formation of auricles and ventricles. The right lung weighed 39.4 Gm. and the left 51 Gm. They appeared red and congested. On section extensive bronchopneumonia could be demonstrated. The adrenal glands weighed 3 Gm. each and showed medullary hemorrhages. Microscopic examination of the lungs revealed engorgement of blood vessels and multiple areas of bronchitis with peribronchial infiltration by lymphocytes, mononuclear cells and polymorphonuclear leukocytes. Extensive atelectasis was present. The bronchi in places were filled chiefly with a mononuclear exudate mixed

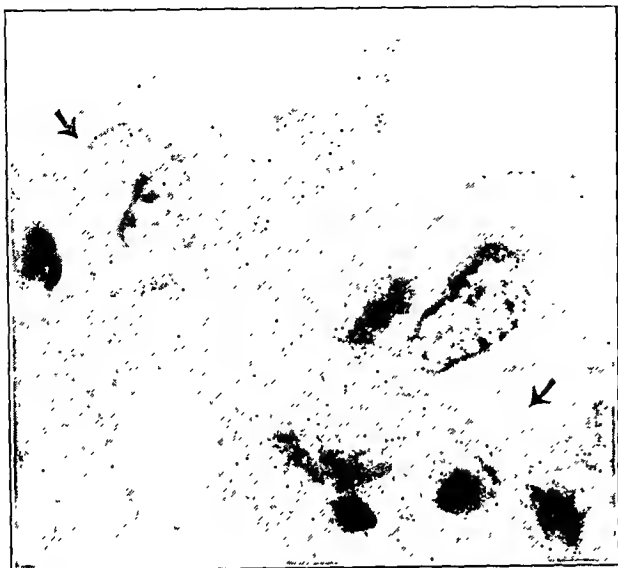


Fig. 12.—Section showing cytoplasmic inclusion bodies in bronchial epithelium (case 2). Note vacuoles in the larger body; $\times 1,800$.

were heard over both pulmonic fields, but no other evidence of consolidation was found on physical examination. The hemoglobin content of the blood was 90 per cent; the total leukocyte count was 6,400 per cubic millimeter, with 77 per cent neutrophils, 20 per cent lymphocytes and 3 per cent monocytes. Roentgenograms of the lungs revealed slight densities in the upper lobe of the right lung suggestive of patchy bronchopneumonia. The child was treated with oxygen, mild sedatives and steam inhalation. Attacks of cyanosis became more frequent and severe. The white blood cell count on the third day in the hospital rose to 15,000, with 69 per cent neutrophils, 28 per cent lymphocytes and 3 per cent monocytes. Death occurred during an attack of cyanosis on February 20, the fifth hospital day. (Figure 2 charts the temperature record.)

Autopsy.—The right lung weighed 60 Gm. and the left 45 Gm. Both lungs, especially in the lower lobes, showed numerous hemorrhagic consolidated areas up to 6 mm. in diameter. The bronchi contained a small amount of colorless mucous material. Microscopic examination of the lung disclosed scattered areas of hemorrhage and atelectasis. Necrosis of bronchial epithelial cells evidenced by sloughing with but a single layer of cells remaining stood out as a prominent change. The epithelial cells of the bronchi showed cytoplasmic inclusion bodies. Pneumococcus typing by the Minnesota State Board of Health yielded pneumococcus type XXVII, obtained from a culture taken post mortem of material from the lungs.

CASE 6.—J. L. J., a full term baby boy, was born at the Booth Memorial Hospital on December 31. His course was uneventful until February 12, when coughing was first noted. Shortly thereafter respiration became difficult, as considerable amounts of mucoid exudate accumulated in the air passages. He was transferred to the University Hospitals on February 15. Cough was now intense and dyspnea evidenced by noticeable retraction of the sternum, costal margins and intercostal spaces. Severe attacks of cyanosis were associated with periods of apnea broken by sudden, deep respirations. The pulse was irregular. Many fine, sticky rales were heard over the upper lobes of both lungs, but there was no impairment of the percussion note over such areas. Roentgenograms of the lungs, however, disclosed increased density and mottling involving the upper lobes of both lungs. From a laryngoscopic examination made during an attack of respiratory difficulty it was observed



Fig. 13.—Section of lung, showing alveolar cell with an inclusion body in the cytoplasm (case 8); $\times 1,800$.

with a few necrotic epithelial cells. The intact as well as sloughing bronchial epithelial cells contained many cytoplasmic inclusion bodies.

CASE 8.—A. M. S., a baby girl born at the University Hospitals January 21, was slightly immature and weighed 2,400 Gm. She was discharged from the University Hospitals on January 31, weighing 2,140 Gm., and was admitted to the Booth Memorial Hospital. At the time of admission the child was

listless and was coughing. Her cough continued, and on February 10 the temperature was 100 F. She was transferred back to the University Hospitals on February 17. For twenty-four hours prior to admission the child's condition was poor, characterized by increasing cough and cyanosis associated with prolonged periods of apnea. Physical examination revealed her to be small, flaccid and listless. There was no dullness over



Fig. 14.—Section of lung, showing an alveolar cell with inclusion body in the cytoplasm. Note halo about body (case 8); $\times 1,800$.

the pulmonic fields but there were questionable diminished breath sounds and fine rales on the right side. Leukocytes numbered 5,700 with 6 per cent neutrophils, 91 per cent lymphocytes and 3 per cent monocytes. A roentgenogram of the lungs showed some mottling and increased density throughout the right side suggestive of patches of bronchopneumonia. The child was given blood transfusions on three occasions and fluid subcutaneously. The white blood cell count rose to 36,000 with 35 per cent neutrophils, 64 per cent lymphocytes and 1 per cent monocytes. A roentgenogram of the lungs on the day prior to her death disclosed a homogeneous shadow obliterating the lower two thirds of the right pulmonic field. This was interpreted as consistent with consolidation and possibly a small amount of fluid and either small abscesses within the lung or small air pockets in the pleural space. There was some suggestion of atelectasis. The child's cyanosis and respiratory irregularity increased progressively during the last three days of life. (The temperature record is charted in figure 2.)

Autopsy.—The pleural cavity showed multiple fibrinous adhesions on the right side, with about 20 cc. of purulent fluid in the posterior cavity in the right side of the chest. The right lung weighed 55 Gm. and the left 30 Gm. The right lung was grossly consolidated and adherent throughout. The left lung showed a few ecchymotic areas. The liver weighed 200 Gm. and extended 5.5 cm. below the right costal margin. The kidneys were pale and showed ecchymotic areas; on section small hemorrhagic areas were seen in the cortex. Microscopic examination of the lungs showed the pleura covered with a fibropurulent exudate. There was evidence of severe bronchopneumonia with predominant mononuclear infiltration. Some areas showed more destruction than others, with the formation of abscesses. Microscopic study (by oil immersion) of the pulmonary tissues revealed characteristic cytoplasmic inclusion bodies in the bronchial epithelial and alveolar cells.

CASE 9.—J. D. O., a full term baby boy, was born December 31 at the Booth Memorial Hospital. The child's course was normal until February 12, at which time he was listless and coughed. On February 16 he was transferred to the University Hospitals with a history of cough for four days. Apathy, anorexia and increasing dyspnea were accompanied by mild cyanosis. Examination revealed him to be acutely ill with

respiratory difficulty, subcostal and sternal retraction and slight cyanosis. Many fine, sticky rales were heard throughout both lungs and sounded close to the surface. Examination of the blood showed hemoglobin 81 per cent, leukocytes 10,000, neutrophils 25 per cent, lymphocytes 71 per cent, eosinophils 3 per cent and basophils 1 per cent. Pneumococcus type XXVII was isolated from the sputum. Roentgenograms showed an area of increased density in the upper portion of each lung. A low grade temperature characterized the child's course in the hospital. On two or three occasions only did it rise as high as 100.8 F. Further roentgenograms of the lungs on February 27 were interpreted as demonstrating bilateral bronchopneumonia. The child was treated with three small blood transfusions, fluids given subcutaneously and oxygen. The attacks of cyanosis and cough gradually subsided, and the patient was discharged in good condition on March 9.

CASE 10.—A. R. G., a full term baby boy, was born at the Booth Memorial Hospital January 5. The clinical course was uneventful until the present illness, which began four days prior to admission to the University Hospitals on February 16. This period was characterized by cough, listlessness and apathy with anorexia. Two days before admission there had been increasing dyspnea with severe cough. Periods of cyanosis associated with dyspnea developed. Physical examination disclosed him to be acutely ill and apathetic, with a harsh, deep cough. No definite dullness to percussion was elicited but fine, sticky rales were heard close to the surface. Cyanosis was slight. Examination of the blood showed hemoglobin 80 per cent, leukocytes 7,400, neutrophils 33 per cent, lymphocytes 66 per cent and basophils 1 per cent. Roentgen studies of the lungs revealed a slight evidence of bronchopneumonia. Treatment consisted of oxygen given by nasal catheter, blood transfusions and fluid given subcutaneously. The patient was discharged to the Booth Memorial Hospital, where further examinations on April 2 and April 24 revealed him to be normal. (The temperature record is charted in figure 2.)

CASE 11.—J. R. D., a full term baby girl, born at the Booth Memorial Hospital on January 5, had an uneventful infancy until February 12, when she began to cough. The patient was transferred to the University Hospitals with a history of cough, dry and hacking, of five days' duration. On the day of

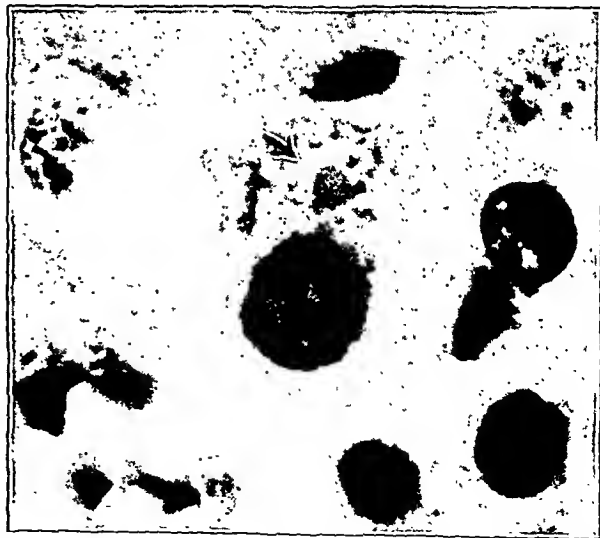


Fig. 15.—Section of adrenal medulla, showing large cell with inclusion-like body in the cytoplasm (case 2); $\times 1,800$.

admission cyanosis developed. Physical examination disclosed her to be slightly cyanotic, with dyspnea and noticeable retraction of the intercostal spaces and the sternum. Wet, sticky rales could be heard at the end of inspiration. Examination of the blood showed hemoglobin 90 per cent, leukocytes 15,400, neutrophils 50 per cent and lymphocytes 50 per cent. Roentgen study of the lungs showed no changes except for areas of increased density along the right border of the mediastinum. The roent-

gen appearance was suggestive of rather advanced emphysema together with probable bronchopneumonia at the medial portion of the right lung. On February 27 the leukocyte count reached 29,000, and on March 8 it dropped to 15,000. Type XXVII pneumococcus was isolated. Streptococci were also present in large numbers. Subsequent roentgen studies on February 24 and March 1 showed approximately the same conditions in the lungs. The child's course in the hospital was prolonged. Little fever was present during the first five days. The temperature then ranged between 100 and 101 F. for a period of ten days. The cough increased and the cyanosis became more severe. Oxygen was administered through a nasal catheter. The patient received one transfusion and was discharged on March 9. Subsequent examination on April 2 showed her to be normal.

CASE 13.—C. A. T., a full term baby girl, was born November 21 at the Booth Memorial Hospital. Her infancy was uneventful until February 19, at the age of 11 weeks, when cough, anorexia, listlessness and apathy developed. On February 22 the temperature was 102 F. Rales were heard on both sides, and noticeable retraction of the sternum and intercostal spaces was observed. Severe cough and cyanosis were present. On February 23 the temperature reached 104 F. On February 27 the patient was transferred to the University Hospitals. Listlessness, pallor, sweating of the forehead and cyanosis were observed. Percussion over the upper lobe of the right lung was dull (fig. 6). Breath sounds were diminished, and many fine rales were present. Examination of the blood showed leukocytes 10,800, neutrophils 40 per cent, lymphocytes 56 per cent, monocytes 3 per cent and eosinophils 1 per cent. The leukocyte count on March 3 was 19,650 with 71 per cent neutrophils. Sputum aspirated from the esophagus contained type XXIII pneumococci. Roentgenograms on February 27 revealed an area of increased density of the upper portion of the right lung and also some increase of the markings at the base of it. On March 2 a roentgenogram showed some extension of this pneumonic process. On March 11 and 19 some resolution was evident (fig. 5). (The temperature record is charted in figure 2.)

CASE 14.—T. J. C., a full term baby boy, born December 24 at the Booth Memorial Hospital, was normal until February 22. On that date a slight nasal discharge and cough were noted. However, feedings were taken well. The next day at 3:15 a. m. the baby was observed by the nurse to be cyanotic and dyspneic. A few minutes later he died. (The temperature record is charted in figure 2.)

Autopsy.—The right lung weighed 100 Gm. and the left 110 Gm. A small amount of pus was expressed from the bronchi. There were scattered red areas throughout the parenchyma of

Cough was severe; cyanosis was not observed but some respiratory difficulty was present. The temperature rose to 101.2 F. on the second day. The infant was transferred to the University Hospitals on April 26. Physical examination revealed rales over both pulmonary fields. Roentgen examination of the lungs revealed patchy areas of increased density extending out from

TABLE 2.—Comparison of Inclusion Disease, Virus Pneumonia of Goodpasture and Present Cases

Diseases involved	Inclusion Disease	Virus Pneumonia of Goodpasture	Present Cases
	Congenital syphilis, miliary tuberculosis, pneumonia (Strep.), meningococcal meningitis, keratomalacia, erythroblastosis, hernia, pneumonia	Whooping cough and measles with secondary pneumonia following	Primary pneumonitis (epidemic)
Organs involved	Salivary glands (common), kidneys (common), liver, lungs, adrenals, thyroid, others	Lungs	Lungs
Clinical and pathologic association	None; no distinctive features, symptoms or disease changes	Pneumonia following measles and whooping cough with pathologic changes of a severe character	Distinctive symptomatology and clinical disease picture of primary pneumonitis with pathologic changes of a severe character
Inclusions	Intranuclear and cytoplasmic	Intranuclear	Cytoplasmic
Cells affected	Large macrophage wandering cells in veins and ducts of epithelial tissues and mesothelial tissues	Epithelial cells of trachea, bronchi, mucous glands and alveolar epithelium	Epithelial cells of bronchial tree and alveoli

both hilar regions (fig. 6). The white blood cell count was 10,300, with polymorphonuclears 40 per cent, lymphocytes 57 per cent, monocytes 1 per cent, eosinophils 1 per cent and basophils 1 per cent. The patient was discharged to the Booth Memorial Hospital on May 3. Physical examination there on June 2 gave negative results.

COMMENT

The now widely accepted concept of Green regarding the nature of viruses is that they are highly specialized, incomplete microbes originating from protozoa and bacteria. They are fundamentally biologic units. Without biologic studies of the living virus one is able to postulate little regarding the life history of this particular organism. Green⁶ stated that "adaptations of viruses to types of cells supersede adaptations to anatomic locations in the individual host and, within certain limits, even supersede adaptations to the species of animal invaded." What other species of animals may be involved in the life history of the virus with which we are now dealing remains for future determination. According to Green, the rigid prerequisites for the survival of a virus are twofold: "First, certain habits must be of such frequency as to insure transfer from one host to another, thereby perpetuating the species; second, fortuitous activities that hinder the transfer to a new host must not be so frequent as to result in failure of host to host transfer and thus destroy the continuity of reproduction." With this idea in mind it may be assumed that there must have been outbreaks of this disease in the past, and one can fully expect to find more in the future.

TABLE 1.—Location of Inclusion Bodies Found at Autopsy*

Case	Lung		Hepatic		Brain	Kidney	Mucous Glands	Other Cells
	Bronchi	Alveoli	Cord	Adrenal Medulla				
1. Boy M.....	+	+	0	—	0	—	—	—
2. Girl P.....	+	+	—	—	—	—	—	—
3. Boy S.....	+	—	—	—	0	—	—	—
4. Boy O.....	+	+	—	0	0	—	—	—
5. S. A. B.....	+	—	0	—	0	—	—	—
6. J. L. J.....	+	+	—	0	0	—	—	—
7. E. L. B.....	+	—	—	0	0	—	—	—
8. A. M. S.....	+	+	—	—	0	—	—	—
14. T. J. C.....	+	—	—	—	0	—	—	—

* Found: +; not found: —; no tissue: 0.

the lungs. Microscopic examination of the lungs revealed scattered areas of congestion and edema; the alveolar septums were infiltrated with mononuclear and polymorphonuclear cells. Patches of monocyte infiltration were common. The small bronchioles in places were filled with epithelial cells; the bronchi contained pus cells and amorphous debris. Cytoplasmic inclusion bodies were found in the bronchial epithelium.

CASE 32.—H. L. J., a full term baby boy, was born March 16. The present illness started on April 23 at the age of 5 weeks.

6. Biologic studies of the virus from recent cases of the disease reported here are in progress.
7. Green, R. G.: The Biology of Animal Viruses, in Virechet, M. B.: Chemistry and Medicine, Minneapolis, University of Minnesota Press, 1940.

The contagiousness evident in this group of cases and the specificity manifested for young infants are epidemiologic features commonly seen in epidemic diarrhea of the newborn. The latter disease is now recognized as a clinical entity of unknown etiology and is by far the most common epidemic disease of this period of life. Frant⁸ pointed out that data from extensive bacteriologic studies in cases of epidemic diarrhea of the newborn have revealed no definite results and further suggested that the general discrepant character of the data strongly indicates that a virus is responsible for this disease.

It has been established by Rivers and other workers in the virus field that "inclusion bodies constitute the visible manifestations of a series of activities taking place in living and frequently in growing cells under the stimulation and degrading influences of certain viruses." The specific or distinctive differences in inclusions, according to Rivers, "may be dependent on the species of host, the type of cell and its portion affected, and the nature of the stimulus in the form of virus or its activity." Goodpasture has stated that cytoplasmic inclusions are often more characteristic of the specific virus involved than are intranuclear bodies, and in certain instances they are pathognomonic of the infecting agent. The type of cell involved, the effect of the agent concerned on that cell, as well as the distribution and the general character of the lesion, are most important in the diagnosis of virus disease.² A comparative study of inclusions in distemper by Green and Evans⁹ illustrates these features most clearly. They showed that the distribution of inclusion bodies indicates that the virus of epizootic fox encephalitis attacks primarily endothelium and that the virus of canine distemper attacks epithelium primarily. In the pathologic material from all 9 fatal cases reported here, only cytoplasmic inclusions were found in the bronchial epithelial cells.

Pulmonary disease in premature and full term infants presents a problem peculiar to the anatomy and physiology of the lungs at this age. The atelectasis and emphysema so commonly accompanying pneumonitis in the first few weeks of life are expressions of the infantile pulmonary immaturity. Pulmonary congestion is an important factor in the pathogenesis of pneumonitis in infancy. The most common illnesses of childhood predisposing to pneumonia are, according to Trask,¹⁰ the common cold, grip, influenza and measles. Edema and congestion of tissues are well known early signs in these diseases. It is noteworthy that all of them are now considered to be due to viruses. Inflammation in the form of cellular exudation, as pointed out by Rivers,¹¹ is a secondary phenomenon in most virus diseases, the primary changes being either degenerative or proliferative.

Congestion was an early occurrence in the cases described. Sneezing and cough were the first symptoms. A copious discharge, ropy in character, was present in most instances. Auscultation of the chest in the early stages revealed diffusely scattered rales. The

cyanosis and respiratory distress, which in some cases were the first symptoms, also indicated that acute pulmonary congestion was present in the patients. In patients dying early from the disease there was pathologic evidence that congestion played a major role in determining the lethal outcome. Microscopic examination of the peribronchial areas showed congestion and partial collapse of the bronchiolar system. The smaller air passages were in places filled with desquamated epithelium. Associated with these changes was fairly widespread atelectasis with little evidence of inflammatory reaction.

This pathologic picture, as well as the characteristic clinical features, suggests that in these peculiarly susceptible infant hosts the virus was the sole agent responsible for the severe illness and even for death in all fatal cases except 1. This conviction is further borne out by the fact that the mortality was 100 per cent in the premature infants affected.

Several recent reports of "atypical pneumonia" referred to in the introduction indicate that the recognition of viruses as possible causes of pulmonary disease is no longer limited to epidemic influenza. Much further study and classification of such disease is obviously needed at the present time. Francis¹² has stated that "differential diagnosis of the diseases caused by them (the viruses) must rest on clinical epidemiology in which clinical features are viewed in the light of established etiology." The ubiquity of the viruses must put physicians on guard for similar outbreaks of infection of the respiratory tract in infants.

SUMMARY AND CONCLUSIONS

1. Cough, dyspnea and cyanosis were the prominent clinical signs of a hitherto undescribed form of primary, epidemic, virus pneumonitis in 32 cases here reported. These were out of proportion to the physical abnormalities in the chest, which consisted principally of fine rales. Biphasic temperature curves were recorded in many cases.

2. Death occurred in all 4 of the premature infants affected and in 5 of the full term infants, resulting in a total mortality of 28 per cent.

3. The distinguishing pathologic changes in the lungs were edema, hemorrhage, atelectasis, mononuclear infiltration and necrosis and sloughing of the bronchial epithelium.

4. Characteristic cytoplasmic inclusion bodies were found in the bronchial epithelial cells of all infants dying from the disease.

5. Influenza was ruled out as the cause of this epidemic by the fact that ferrets inoculated with fresh material failed to generate an influenza-neutralizing antibody. Inclusion bodies have never been found in influenza.

6. Bacteriologic studies revealed that 4 infants had type XXIII and 3 infants type XXVII pneumococci. None of these died, with the exception of 1 in whom type XXVII pneumococcus was found at autopsy.

7. The virus nature of this epidemic pulmonary disease is indicated by its high degree of contagiousness, by its distinctive symptomatology and pathology and by the failure of our laboratories to identify a causative bacterium.

8. Frant, Samuel, and Abramson, Harold: Epidemic Diarrhea of the Newborn, in Brennemann, Joseph: Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc., 1937, vol. 1, chap. 28, sect. 2, p. 19.

9. Green, R. G., and Evans, C. A.: A Comparative Study of Distemper Inclusions, Am. J. Hyg. 29: 75 (March) 1939.

10. Trask, J. D.: Pneumonia and Bronchitis, in Brennemann, Joseph: Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc., 1937, vol. 2, chap. 48.

11. Rivers, T. M.: Some General Aspects of Pathologic Conditions Caused by Filtrable Viruses, Am. J. Path. 4: 91 (March) 1928.

12. Francis, Thomas, Jr.: The Diagnosis of Virus Diseases, Minneapolis Med. 22: 897 (Dec.) 1939.

SKIN PEELING AND SCARIFICATION

IN THE TREATMENT OF PITTED SCARS, PIGMENTATIONS AND CERTAIN FACIAL BLEMISHES

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AND

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Cosmetic defects such as pitted scars and unsightly pigmentations may affect the mental well-being and the economic opportunities of a person. The removal or improvement of cosmetic defects is always a problem.



Fig. 1.—Patient was 31 years of age and suffered from a severe pustular acne for ten years, which resulted in deep pitted scars. Patient was otherwise in good health.

We here describe procedures which we have found efficient in obliterating or lessening such disfigurements.

The so-called skin peeling procedure is used in the treatment of chloasma, marked freckling, excessive oiliness, recalcitrant cases of acne vulgaris, rosacea, and to improve the tone of the skin. It is also beneficial after scarification for the improvement of pitted scars from acne vulgaris, smallpox and chickenpox.

The term "skin peeling" connotes an artificially produced exfoliation of the corneous layer, sometimes extending beyond, caused by various chemical or physical measures.

Normally there is a continuous desquamation of the outermost cells of the corneous layer of the epidermis as part of the process of the physiologic life and death of the epithelial cells. These cells originally derived from the basal or germinal cell layer of the epidermis, gradually move upward, lose their nucleus, become keratinized when they reach the corneous layer, and eventually exfoliate. The application of chemicals for peeling accelerates this process. Preceding the acute exfoliation of the corneous layer produced by chemical applications,

the skin undergoes an inflammatory process with edema. When the inflammation and edema subside, the corneous layer becomes crinkled and parchment-like and then is shed.

The skin peeling process rarely extends beyond the outermost or the corneous layer of the epidermis, and even with the most drastic treatment the lower part of the epidermis rarely exfoliates and the dermis or true skin is not peeled. If the basal cell layer of the epidermis were peeled, there would be bleeding from the blood vessels in the papillae and the possibility of scarring.

A definite improvement in the appearance of the skin after a peeling treatment is apparent. In some conditions it is temporary, in others it is more lasting. The actual peeling is not in itself wholly responsible for the improvement. An explanation might be the increase in the metabolism of the tissues locally, resulting from the intense inflammation and edema caused by the treatment. The astringent effect of the chemicals on the oil and sweat glands may also play a role.¹ This may be the explanation for the improvement frequently observed in cases of indolent acne.

Many methods are used to produce peeling of the skin. Early records show that the Egyptians, Assyrians and Babylonians rubbed pumice on the skin to cause exfoliation of the corneous layer—a method which is in use even today. Exposure to natural or artificial



Fig. 2.—Same patient as in figure 1. The patient's skin was deeply scarified and peeled three times during a period of four months.

sunlight may cause an intense erythema followed by exfoliation. The following chemicals are used for skin peeling: salicylic acid, acetone, resorcinol, solution of formaldehyde, phenol, betanaphthol, glacial acetic acid, mercurial salts, sulfur and solid carbon dioxide. Most of these ingredients can be absorbed through the skin

1. It is well known that many chemicals readily penetrate the skin, reaching the oil and sweat glands.

into the circulation, with the possibility of toxic manifestations occurring in susceptible persons. Before any of the peeling chemicals are applied, the possibility of kidney disease should be eliminated, as this would be a contraindication to their use.

The use of phenol as an exfoliating agent should be confined to selected cases. It can be used with good

toxic manifestations. Repeated peelings of the skin with phenol may damage the fibrous and elastic tissue. Mercurial salts and betanaphthol must also be used with caution.

Chemicals in different concentrations may be used, depending on the rapidity and severity of reaction and the extent of peeling desired. There are some persons



Fig. 3.—Patient was 19 years of age and suffered from a recalcitrant pustular acne for some years, which resulted in numerous pitted scars.

TABLE 1.—Pastes Causing Mild Reactions

		Gm. or Cc.
1. R	Precipitated sulfur	1.0
	Salicylic acid	1.0
	Castor oil	1.5
	Paste of zinc oxide.....to make	30.0
	Mix.	
Apply at bedtime and remove in the morning by washing with hot water and soap. Follow by cleansing with ether or petroleum ether.		
2. R	Resorcinol	0.6
	Salicylic acid	1.0
	Castor oil	1.5
	Paste of zinc oxide.....to make	30.0
	Mix.	
Use as described for prescription 1.		
3. R	Betanaphthol	0.6
	Precipitated sulfur	1.0
	Castor oil	1.5
	Paste of zinc oxide.....to make	30.0
	Mix.	
Use as described for prescription 1.		
As a paste of medium strength, the following may be used:		
4. R	Betanaphthol	4.0
	Sublimed sulfur	8.0
	Peruvian balsam	30.0
	Petrolatum	30.0
	Mix.	
Apply to face for one to three consecutive nights.		

results in pronounced cases of chloasma, rosacea and pitted scars. However, it must be applied most cautiously. Its effect is rapid and its action difficult to control. Furthermore, phenol, especially in weak dilutions, is readily absorbed with the possibility of causing

TABLE 2.—Pastes to Induce Intense Inflammatory Reaction

		Gm. or Cc.
5. R	Resorcinol	40.0
	Ichthammol	10.0
	Petrolatum	10.0
	Hard paste of zinc oxide.....	40.0
	Mix.	
6. R	Betanaphthol	10.0
	Precipitated sulfur	50.0
	Soft soap	20.0
	Petrolatum	20.0
	Mix.	
7. R	Resorcinol	40.0
	Zinc oxide	5.0
	Kaolin	5.0
	Liquid petrolatum	4.0
	Anhydrous lanolin	12.0
	Petrolatum, sufficient..... to make	80.0
	Mix.	

who may have an idiosyncrasy for any one or a combination of these chemicals. If there is a history of an untoward reaction to any one of them, its use should be avoided. In doubtful cases a patch test may be done. However, a negative test may not preclude the



Fig. 4.—Same patient as in figure 3, two years later. This patient's skin was scarified and peeled four times over a period of a year.

possibility of a local sensitivity, especially if the test is made on an area other than the one to be treated.

Chemical peeling agents may be used in the form of pastes or lotions, as given in the accompanying formulas. Certain ones will produce a mild inflammatory reaction with delayed and gradual exfoliation, others an acute severe reaction with rapid exfoliation.

Preliminary to any of the procedures or formulas to be used, the skin should be prepared by a thorough cleansing and degreasing. This may be done in the following manner: The skin should be thoroughly cleansed with soap and water, followed by the application of hot towels for about fifteen minutes, after which any comedones or milia present should be removed.



Fig. 5.—Severe case of chloasma on the face of a woman aged 43.

The skin is then cleansed with ether in order to remove any remaining grit or oil. Sedatives may be given to make the patient more comfortable.

After the peeling chemicals, powdered talcum may be applied to keep the skin as dry as possible until

TABLE 3.—Resorcinol Lotion

	Gm. or Cc.
8. R Resorcinol	60.00
Salicylic acid	30.00
Lactic acid	30.00
Oil of Rose	0.195
Ethyl hydrate	240.00
Mix.	

exfoliation occurs. Water or emollients should not be used until the exfoliating layer has been or is being cast off.

PASTES

A mild reaction with delayed peeling (from two to four weeks) may be produced by the application of any one of the pastes given in table 1.

Formulas for pastes to induce an intense inflammatory reaction with rapid peeling are given in table 2.

In order to avoid any untoward reactions, pastes 4, 5, 6 and 7 should at first be applied for only twenty minutes to one hour or longer in order to ascertain as far as possible any hypersensitivity. This test will also help to determine the duration and the frequency of subsequent applications. The paste should be applied about 1 mm. thick as evenly as possible over the face,

with care to avoid the eyelids and the vermillion border of the lips. Ordinarily these pastes are left on for about twelve hours, but the time may be shortened or lengthened, depending on the reaction desired. After each application the paste is removed with benzine or ether, and powdered talcum or lotio alba may then be applied. Usually pastes 4, 5, 6 and 7 will produce a severe inflammatory reaction with edema after an application of twelve hours. However, the desired reac-

TABLE 4.—Peeling Lotions

	Slow Peel, Gm. or Cc.	Fast Peel, Gm. or Cc.
9. R Mercury bichloride	0.05	0.1
Salicylic acid	2.	5. to 20.
Resorcinol	2. -4.	5. to 20.
Betanaphthol	0.1 -0.25	1. to 4.
Alcohol (95%)	100.0	100.0
Mix.		
Apply with cotton applicator one to three times daily.		
10. R Formaldehyde	2.	4.
Glacial acetic acid	0.5	2.
Alcohol (95%)	100.	100.
Mix.		
Apply one or two times daily.		

tion may not occur until the treatment is repeated on two or three successive days. When the edema begins to subside, the skin assumes a reddish brown, dusky hue. As it further subsides, the skin becomes parchment-like or mummified, shortly after which numerous fissures develop and exfoliation occurs. As already



Fig. 6.—Same patient as in figure 5, showing removal of pigmentation following a skin peeling. There has been no recurrence of the pigmentation in over four years.

mentioned, emollients or water are not to be used until exfoliation is well under way or completed.

Many prefer to use the peeling agents in solutions rather than in pastes. The solutions are more easily applied. The intensity of the reaction in the skin and the depth of peeling desired can be controlled by varying the concentrations of the solutions and the number and intervals of their applications.

LOTIONS

The solution given in table 3 is applied over the entire face with a cotton applicator every 10 minutes for 5 to 8 applications. The edges of the eyelids and the lips must be avoided. As the fumes may irritate the eyes, castor oil should be dropped into them preceding the applications and, if necessary, repeated



Fig. 7.—Extensive freckling of the face of a woman aged 37.

during the treatments. The pain may be lessened by drying with a fan. After the third application, the lotion may be rubbed in until the skin becomes whitish. Only a freshly mixed solution should be used, and a new cotton applicator for each painting. During the period of applications, the patient should drink five or

TABLE 5.—Lotions Containing Phenol

	Gm. or Cc.
11. R Salicylic acid	6.
Phenol	30.
Alcohol (95%)	64.
Mix.	
Apply one or two times daily.	
12. R Salicylic acid	3.
Mercury bichloride	1.50
Phenol	22.50
Alcohol (95%)	22.50
Mix.	
Apply one or two times daily.	

six glasses of water. After the sixth application, swelling usually occurs. This increases for about three days, the skin assuming a darkish hue. In order to keep the face dry, the patient is instructed to apply powdered talcum two or three times daily. On the fourth or fifth day the edema subsides, the skin becomes parchment-like or mummified and fissured, and on the sixth or seventh day exfoliation occurs.

In tables 4 and 5 are additional formulas for peeling lotions.

Phenol lotions are used when an intense reaction and deep peeling are desired. The number of applications will be determined by the sensitivity of the skin, and it is advisable at first to apply one coat only, to note the reaction. The number of applications should be limited to four and may be given over a period of an hour.

PEELING BY CRYOTHERAPY

Cryotherapy, or the use of carbon dioxide snow slush, has proved most efficient in the treatment of recalcitrant cases of acne vulgaris and its scars, rosacea and superficial telangiectasia. It can also be used to advantage in any condition of the skin in which a mild astringent action and peeling are desired.

The carbon dioxide slush is prepared as follows: One hundred and fifty Gm. of solid carbon dioxide (dry ice) is hammered into a fine powder, which is then placed in a mortar and thoroughly mixed with about 10 Gm. of precipitated sulfur. Sufficient acetone is added to this mixture, with constant stirring, until a slush the consistency of soft "water ice" is obtained. A gauze tampon is dipped into the slush and immediately rubbed on the skin. Sufficient rubbing with pressure is done to cause a mild blanching of the skin. This may be repeated several times during one session, depending on the severity of the reaction and the depth of peeling desired. These treatments may be given



Fig. 8.—Same patient as in figure 7, showing removal of freckles following peeling treatments with a lotion containing salicylic acid and resorcinol.

several times weekly over a period of months. This mixture is also efficacious without the sulfur, especially in the absence of acne or rosacea. When giving these treatments, one should carefully protect the eyes by means of a shield. In order to avoid burns of the skin, no solid ice particles should be present in the slush.

Another method of applying the carbon dioxide slush is to place the finely ground dry ice and the sulfur in a

gauze bag into which the acetone sufficient to make the consistency of hard water ice is dropped. The bag is then applied directly to the skin with a rubbing motion. The fingers of the operator are protected by a thick rubber ring through which the upper part of the bag is pulled through and held.

After the evaporation of the solid carbon dioxide and acetone on the skin, the sulfur residue may be allowed to remain for about three hours, after which it may be washed off with soap and water. The following day there is a mild erythema and peeling of the skin.

SCARIFICATION

Scarification is a method of treatment which will in many cases improve the appearance of pitted scars, especially the superficial ones. For the deeper scars, repeated scarification is necessary. This is best done with a scalpel having a sharp thin blade. Various instruments with multiple blades have been recommended with the claim that the incisions are more uniformly

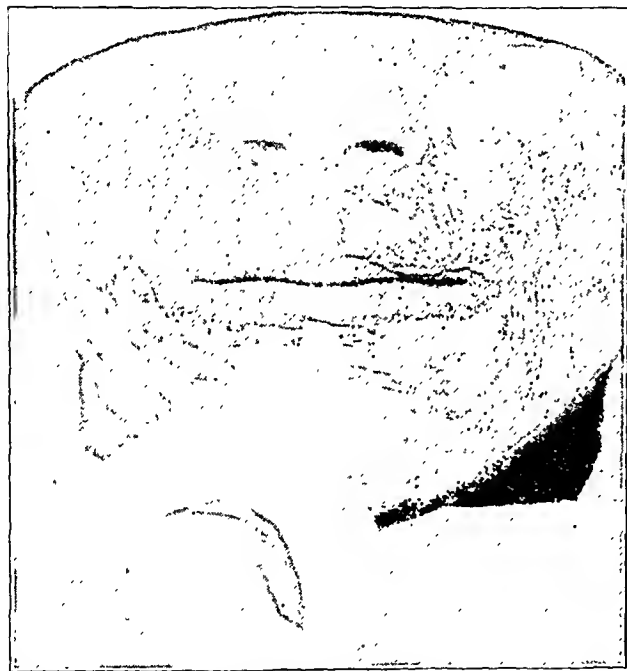


Fig. 9.—Carbon dioxide slush (containing sulfur) applied in a case of acne pitted scars. A gauze covered applicator is dipped into the slush and immediately applied to the skin by rubbing with a circular motion, using slight pressure.

spaced and that the time required is shortened. We favor the use of the single blade, since it enables the operator to be in full control of each incision. The scars are crisscrossed with multiple closely made incisions into the cutis, varying in depth according to the scar. Bleeding occurs when the papillae have been penetrated. Strict aseptic precautions must be followed to prevent infection. Healing takes place by first intention in about a week.

Unusually deep or cuplike scars may be improved considerably by shaving off the upper layers of the skin as in taking an epidermic skin graft. This removes the upper edges of the scars, thereby lessening the depths of their concavities. Cuplike scars may also be improved by bevelling off their edges by electrodesiccation.

The skin peeling procedures may follow the treatments any time after healing takes place.

745 Fifth Avenue.

CUTANEOUS AND CONJUNCTIVAL MANIFESTATIONS OF SULFATHIAZOLE INTOXICATION

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The introduction of the newer chemotherapeutic drugs has produced several clinical patterns of toxic manifestations. These effects are encountered in several organs and tissues of the body. One of the most common of these is the untoward reaction encountered in the skin. Indeed, if the nausea and vomiting induced by sulfapyridine are eliminated from consideration, cutaneous rashes are probably the most frequent toxic reaction.

Attention has been directed repeatedly to these cutaneous manifestations with the use of sulfanilamide and sulfapyridine. Experience indicates the former as the more frequent offender in this regard. For example, the types of rashes encountered are indicated by such varied descriptions as erythematous, morbilliform, maculopapular, erythema multiforme, vesicular, bullous, urticarial, exfoliative and purpuric. On the other hand, rashes produced by sulfapyridine have been infrequent. The morbilliform eruption is most commonly encountered on sulfanilamide administration. Nevertheless, specific rashes probably cannot be ascribed to the specific sulfanilamide drug. There may be an exception to this statement because we have encountered a nodular type of rash only with the use of sulfathiazole.

Sulfathiazole, 2-sulfanilamidothiazole, has been recently introduced as an addition to the chemotherapeutic armamentarium. The advantages of this synthetic derivative of sulfanilamide over sulfapyridine are definite and have been described in detail by several investigators. However, Long and his associates¹ have stressed the frequency with which cutaneous rashes are encountered, reaching the astonishing incidence of 12.8 per cent in a group of 78 cases. Flippin and his associates² gave an incidence of 4 per cent of 100 patients treated. The following report deals with 7 patients suffering a rash while on sulfathiazole medication, an incidence of 3.9 per cent in a group of 180 patients. The untoward reactions otherwise encountered in this series have been surprisingly small: nausea and vomiting in 3.8 per cent and drug fever in 1.2 per cent, both thus surpassed by the incidence of cutaneous rashes. A summary of the series appears in the accompanying table.

The average dose of sulfathiazole employed in the series of 180 patients was 26 Gm. The average dose

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From the Cook County Hospital and the Department of Medicine, Loyola University School of Medicine.

The Squibb Institute for Medical Research, New Brunswick, N. J. provided the sulfathiazole for use in this investigation.

1. Long, P. H.; Haviland, J. W.; Edwards, Lydia B., and Flippin, Eleanor A.: The Toxic Manifestations of Sulfanilamide and Its Derivatives, *J. A. M. A.* **115**: 364 (Aug. 3) 1940.

2. Flippin, H. E.; Schwartz, Louis, and Rose, S. B.: The Comparative Effectiveness and Toxicity of Sulfathiazole and Sulfapyridine in Pneumococcal Pneumonia, *Ann. Int. Med.* **13**: 2038 (May) 1940.

given patients in whom rashes developed was 34 Gm. While the rash occurs most frequently and with greater severity after the use of large total doses, it must be stated that 2 patients showed cutaneous eruptions after only 6 Gm. was employed. One of these patients, however, had received 12 Gm. six days before. The patients who died were given doses of 30, 51 and 75 Gm.



Fig. 1.—Nodular rash of lower extremities, arm and abdomen.

respectively. All suffered from severe pneumonic disease, which was the cause of death. One patient with a maculopapular rash survived although receiving a total dose of 59 Gm.

In 4 patients the manifestations appeared after five days of use of the drug, namely after five, five, ten and

Clinical Summary of Seven Patients with Sulfathiazole Intoxication

Patient	Age	Appearance of Rash	Total Dose of Drug, Gm.	Blood Level, Mg. per 100 Cc.	Type of Rash	Outcome
V. B.	45	1st day	4*	4	Maculopapular	Recovery
A. H.	69	5th day	30	4.7	Nodular, purpuric	Death
J. F.	56	10th day	75	4.5	Nodular	Death
J. Z.	32	3d day	30	2.5	Maculopapular	Recovery
S. A.	15	14th day	59	4.0	Maculopapular	Recovery
W. E.	64	5th day	51	7.1	Nodular	Death
P. H.	39	2d day	20	2.8	Urticarial	Recovery

* Had received 12 Gm. of the drug over a period of three days, six days previously.

fourteen days respectively. The remaining patients had onset after two and three days. One person showed a maculopapular rash after twenty-four hours on resumption of the drug when it had been discontinued for six days after three days of medication. This suggests sensitization induced by the resumption of interrupted medication. Three patients over 50 in whom cutaneous manifestations developed died, all showing the severe, nodular form of rash. This correlation of age with a high percentage of mortality is definite with pneumococcal infections of the lung, although some toxemia is probably added by the drug intoxication. The average blood sulfathiazole concentration in the patients with eruptions was 4.2 mg. per hundred cubic centimeters, with a range from 2.5 to 7.1 mg. Determinations were made at the appearance of the rash, when the drug was usually discontinued. This blood concentration average

is about the same as that encountered in the entire series, a level of accepted therapeutic effectiveness. Thus no conclusions can be drawn as to the relation between the concentration of the drug in the blood and the development of the rash.

The variety of rashes encountered in this series was as follows: one urticarial, three maculopapular and three definitely nodular, one of the last-mentioned being complicated by a purpuric lesion. The chronologic sequence apparently is first macular, then papular and finally nodular, depending on the total amount of the drug administered, the continued use of the drug and, perhaps an additional factor, the age of the patient. Increasing age probably renders the patient more susceptible to cutaneous complications, especially the severer forms. The first two stages, macules and papules, may appear almost simultaneously and are not distinctive. The nodular form, however, has presented a rash which we have not encountered previously in any other disease or condition.

The nodules appeared first on the extremities, the extensor surfaces of the hands and arms and the flexor surfaces of the thigh. The lesions usually occur bilaterally but not symmetrically. Initially the nodules are discrete but spread rapidly and may involve the entire body. They may remain discrete or fuse and become confluent. These nodules are distinctly elevated above the general level of the skin and vary in diameter from 1 to 10 mm. The color is usually dark reddish. Figures 1 and 2 illustrate this type of eruption. Histologic evidence was obtained from biopsy specimens (figs. 4 and 5). The biopsy report was as follows:

Biopsy of the skin revealed hyperkeratosis with an almost complete absence of the keratohyaline layer of epithelial cells. The granular layer revealed a moderate intra-epithelial edema with elongation of the nuclei perpendicular to the surface of the skin both in the granular layer and particularly in the stratum germi-

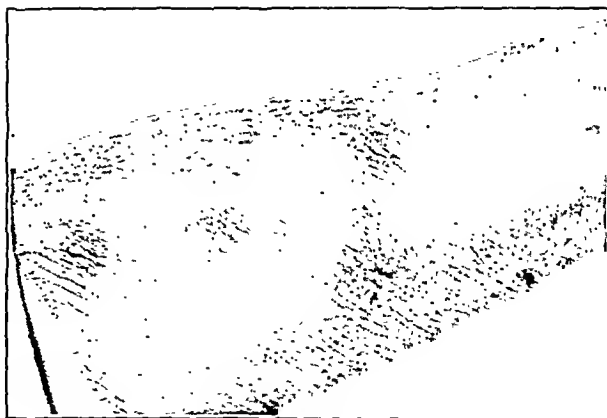


Fig. 2.—Nodular rash with erythema.

nativum. The papillary layer of the dermis was edematous and contained a fine fibrillary network. The reticular layer of the dermis was unchanged.

This report is characteristic of several biopsies.

COMMENT

The evidence thus presented illustrates the pronounced frequency of cutaneous manifestations of medication with sulfathiazole. Attention must be called

to the frequent involvement of the conjunctiva. This was noted in association with 4 of the 7 cases of rash. Only 1 case of severe conjunctivitis unassociated with cutaneous eruption was encountered. The conjunctivitis was frequently severe, with a bright red injection of the palpebral and bulbar conjunctiva, with edema of the eyelids and a seropurulent discharge. Some photo-

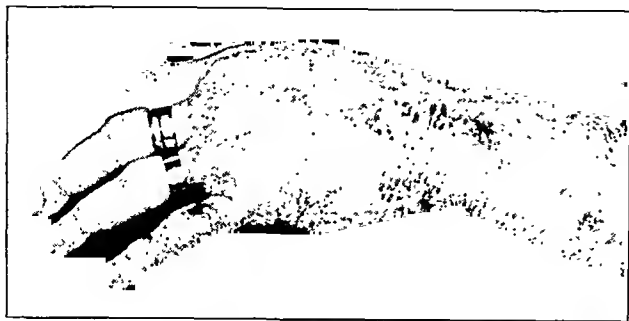


Fig. 3.—Nodular rash with purpuric base.

phobia was present. The conjunctivitis cleared rapidly, and no permanent changes have been noted. The brief reports of the following 2 cases illustrate the data described.

REPORT OF CASES

CASE 1.—W. E., a white man aged 64, was admitted April 17, 1940 with pneumonia of the middle lobe of the right lung and type III pneumococcus in the sputum, but a sterile blood culture. The patient was given sulfathiazole by mouth, receiving an initial dose of 4 Gm. followed by 1 Gm. every four hours. The temperature dropped to normal by lysis on the fourth day. On the fifth day it was elevated to 103 F., and an eruption appeared on the skin of the arms and legs. Originally maculopapular, it rapidly became nodular and spread to involve the entire surface of the body except the face. The level of sulfathiazole in the blood at this time was 7.1 mg. per hundred cubic centimeters. Fifty-one Gm. of the drug had been given. The drug was discontinued. The patient died forty-eight hours later.

CASE 2.—A. H., a white woman aged 69, was admitted on April 30, 1940 with type II lobar pneumonia and a sterile blood



Fig. 4.—Section of nodular rash. Reduced from a photomicrograph with a magnification of 130 diameters.

culture. On the fourth day of medication with sulfathiazole severe conjunctivitis with edema of the eyelids was noted. The following day maculopapular lesions appeared on the extensor surfaces of both forearms (fig. 3), the dorsa of both hands and the flexor surfaces of the thighs. The lesions were deep red and elevated above the general level of the skin, varied between 0.5 and 5 mm. in diameter and felt edematous. Many were poorly demarcated and on the dorsa of the hands became

confluent and hemorrhagic. The level of sulfathiazole in the blood was 5.5 mg. per hundred cubic centimeters. Administration of the drug was stopped, a total of 30 Gm. having been given. Eighteen hours later the blood sulfathiazole level was 4.7 mg. and that of the urine 227 mg. per hundred cubic centimeters. The lesions disappeared almost entirely in forty-eight hours. However, there was no response to supportive therapy, and the patient died two days later, four days after cessation of treatment with sulfathiazole.

SUMMARY AND CONCLUSIONS

1. Cutaneous eruptions and conjunctivitis are frequently encountered on medication with sulfathiazole.
2. The rashes encountered are urticarial, erythematous, macular, papular, nodular and purpuric.
3. Of these, the nodular is the most distinctive, definitely different from any nodular lesion previously encountered.



Fig. 5.—Section of nodular rash. Reduced from a photomicrograph with a magnification of 325 diameters.

4. The nodular lesion probably represents the advanced stage of toxic rash developing on continued medication. It has been the most serious lesion, having been associated with a fatal outcome in a high percentage of cases.

5. There is no definite correlation between the level of the drug in the blood and development of the rash. The total dosage shows a closer relationship. Sensitization may follow resumption of interrupted medication.

6. Most rashes develop on the fifth day or later with sulfathiazole administration.

7. Conjunctivitis is a frequent accompaniment of the rash, although it may appear as an isolated phenomenon.

8. Cessation of administration of the drug is immediately indicated and may prevent further toxic developments.

30 North Michigan Avenue.

Clinical Notes, Suggestions and New Instruments

METHOD FOR OBTAINING RAPID BACTERIAL GROWTH IN CULTURES FROM PATIENTS UNDER TREAT- MENT WITH SULFONAMIDES

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Since the introduction of the sulfonamide drugs for the therapy of bacterial infections, it has often been difficult to obtain positive cultures from patients under treatment. In most cases this is because the bacteria have actually disappeared from the lesion or the blood stream. In other cases, however, when the patient is obviously ill and not responding satisfactorily to treatment, cultures may grow out slowly if at all. Occasionally a patient is seen at home by a physician without facilities for taking cultures, who makes the diagnosis and puts the patient on chemotherapy. If the response is unsatisfactory, the patient is sent to the hospital, where, because of the presence of sulfonamide in the body fluids, it becomes exceedingly difficult to make an accurate bacteriologic diagnosis and hence to institute proper therapy.

We have encountered several such cases recently. One patient with purulent meningitis had been heavily treated with sulfanilamide at home without any clinical improvement. Cultures of the spinal fluid, made at the time of admission, were still sterile when he died three days later, although *Staphylococcus aureus* eventually grew out in large numbers. In subacute bacterial endocarditis, blood cultures have become sterile or the number of colonies has been sharply reduced soon after the institution of sulfapyridine therapy, although eventually fever and positive blood cultures have returned.

Experimental investigations of the bacteriostatic action of these drugs have convinced us that negative cultures in certain cases in which sulfonamide derivatives have been employed are false results. It has been shown that organisms grown in sulfanilamide for four or five hours and then transferred to fresh mediums that contain sulfanilamide are much more inhibited than are ordinary organisms.¹ Furthermore, it has been shown that the bacteriostatic effectiveness of these drugs in cultures of susceptible organisms is more dependent on the size of the inoculum than on the concentration of the drug.² If 10 cc. of blood is withdrawn from a patient with a blood level of 10 mg. per hundred cubic centimeters of sulfanilamide and injected into a flask containing 100 cc. of sterile broth, the sulfanilamide concentration in the flask will be 1 mg. per hundred cubic centimeters. This is ample to inhibit the growth of the small number of organisms present in the blood, particularly when they are already under the influence of sulfanilamide. Similar results may be obtained with cultures of other body fluids, and growth may either be completely inhibited or only delayed.

Recent work of Stamp³ and Green⁴ in England, and MacLeod⁵ in this country has shown that there are certain

substances, "inhibitors," capable of nullifying the bacteriostatic action of the sulfonamides. These are present in autolyzed tissue and culture filtrates of sulfonamide-resistant organisms, thus explaining the poor bacteriostatic action of the drugs in pus and certain batches of broth. One such substance which has been definitely identified is para-amino benzoic acid,⁶ which is a readily obtainable, comparatively cheap chemical compound.

It was felt that the addition of para-amino benzoic acid to routine culture mediums might make it possible to obtain rapid growth in cultures from patients under treatment when organisms were present. This has turned out to be the case. This chemical can be added to the beef heart infusion which forms the base of all our standard mediums at the time when the peptone and salt are added, and it will withstand autoclaving at 15 pounds pressure for twenty minutes. All our ordinary mediums are made up containing this compound in a final concentration of 5 mg. per hundred cubic centimeters. Experiments have shown that 1 mg. per hundred cubic centimeters would inhibit the bacteriostatic action of as much as .50 mg. per hundred cubic centimeters of sulfanilamide under favorable circumstances, but that 5 to 10 mg. per hundred cubic centimeters of para-amino benzoic acid was likewise effective and not inhibitory to growth. Therefore, in order to take care of the high drug concentrations present in urine, 5 mg. per hundred cubic centimeters was arbitrarily chosen for our routine concentration.

Number of Colonies per Cubic Centimeter of Blood as Determined by Plates Poured with 1 Cc. of Citrated Blood and 10 Cc. of 0.2 per Cent Dextrose Beef Heart Infusion Agar

	Date	Days of Incubation									
		1	2	3	4	5	6	7	8	9	10
A. B.	11/13/40	A	0	1	6	7	7	13	13	13	
		B	0	0	0	0	0	0	0	0	
	11/26/40	A	0	3	5	12	14	15	17	17	17
		B	0	0	0	0	0	0	0	0	0
E. B.	11/12/40	A	5	15	15	15	15	15			
		B	0	3	5	5	5	5			
	11/26/40	A	14	16	16	16	20	..	22	22	
		B	0	3	4	5	5	..	5	5	

A contains 1 mg. per hundred cubic centimeters of para-amino benzoic acid; B contains no para-amino benzoic acid.

Further experiments showed that para-amino benzoic acid was not inhibitory to any of the common pathogenic organisms. Various strains of *Staphylococcus aureus*, *Streptococcus viridans*, *Streptococcus haemolyticus*, *pneumococcus*, *gonococcus*, *typhoid bacillus*, *colon bacillus* and *Aerobacter aerogenes* were tested. In every case rapid growth was obtained in the presence of 1 mg. per hundred cubic centimeters of para-amino benzoic acid. Whenever the bacteriostatic effect of 10 mg. per hundred cubic centimeters of one of the sulfonamides could be demonstrated, this concentration of para-amino benzoic acid was sufficient to nullify it. Although careful quantitative tests were not performed, this drug seemed to be about as effective against the bacteriostatic action of sulfapyridine and sulfathiazole as of sulfanilamide.

Blood cultures were taken from two patients with subacute bacterial endocarditis who had been under treatment with sulfapyridine for over a month and inoculated into mediums with and without para-amino benzoic acid. In these two patients positive cultures were obtained in either medium, but the organisms grew much faster in the presence of para-amino benzoic acid, and the number of colonies was always greater in the plates containing it.

The tabulated counts of the number of colonies of *Streptococcus viridans* noted in pour plates from the blood of these patients illustrates this graphically.

From the Medical Clinic of the Peter Bent Brigham Hospital and the Departments of Medicine and Bacteriology and Immunology, Harvard Medical School.

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2. Lockwood, J. S.: Studies on the Mechanism of Action of Sulfanilamide: III. Effect of Sulfanilamide in Serum and Blood on Hemolytic *Streptococci* in Vitro, *J. Immunol.* **35**: 155-193 (Sept.) 1938. Chandler and Janeway.¹

3. Stamp, T. C.: Bacteriostatic Action of Sulfanilamide in Vitro: Influence of Fractions Isolated from Hemolytic *Streptococci*, *Lancet* **2**: 10-17 (July 1) 1939.

4. Green, H. N.: The Mode of Action of Sulfanilamide with Special Reference to a Bacterial Growth-Stimulating Factor (P Factor) Obtained from *Brucella Abortus* and Other Bacteria, *Brit. J. Exper. Path.* **21**: 38-64 (Feb.) 1940.

5. MacLeod, C. M.: The Inhibition of the Bacteriostatic Action of Sulfonamide Drugs by Substances of Animal and Bacterial Origin, *J. Exper. Med.* **72**: 217-232 (Sept.) 1940.

6. Woods, D. D.: The Relation of p-Aminobenzoic Acid to the Mechanism of the Action of Sulfanilamide, *Brit. J. Exper. Path.* **21**: 74-99 (April) 1940. Selbie, F. R.: The Inhibition of the Action of Sulfanilamide in Mice by p-Aminobenzoic Acid, *ibid.* **21**: 99-93 (April) 1940.

SUMMARY

We recommend the addition of para-amino benzoic acid to a final concentration of 5 mg. per hundred centimeters to all routine culture mediums. It will make cultures from patients under treatment with the sulfonamide drugs mean what they should—i. e. the presence or absence of viable organisms. By way of caution, it must be noted that the body fluids may frequently be sterilized by sulfonamide therapy and then later become positive again when the patient relapses. During the remission, positive cultures could be obtained only from the local focus, and no amount of para-amino benzoic acid would make the cultures of the body fluids positive.

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Special Articles

LEGAL RESPONSIBILITY FOR MEDICAL MALPRACTICE

I. THE LEGAL MATRIX OF MEDICAL MALPRACTICE

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FOREWORD

Within the last thirty years the practice of medicine has become an enormously more complex undertaking, and during that period the increase in legal problems relating to medical practice has tended to parallel the general enlargement of the field. Prior to 1910, the patient-physician relationship was a relatively simple one. Since then, the legal aspects of this relationship have been complicated by many changes, including the practice of dividing the responsibility for the diagnosis or the care of patients with other physicians, with technicians or with nurses; the advent of group practice, of health insurance and of contract practice; the growing number of circumstances in which the physician examines but does not treat, as in the examination of insured persons, of employees, of school children, of claimants of pensions, of claimants of damages for personal injury and of persons accused of crimes; the increase in the number of physicians employed on a part or full time basis, and the increase in the number of patients cared for through charity or by public funds.

Mr. Smith has attempted to define the fundamental principles on which the legal status of the varied problems of medical malpractice must be determined. He has given the physician a rationale by which he may reason, rather than a mere catalogue of legal decisions. By so doing he has rendered a great service to the physician who wishes to have a clear understanding of the legality of his professional activities.

ALAN RICHARDS MORITZ, M.D.

"Law is a seamless web," said Maitland the legal historian. To the uninitiated, this attribute makes of the law a perplexing mystery. He seizes avidly on a single thread, only to find that he has many tangled skeins within his grasp. Each thread is too interwoven in the complete fabric to have much meaning alone. To trace the many patterns and to put the threads in their true relations is an arduous task for even the most experienced lawyer.

Yet, curiously, the pattern of legal responsibility for medical malpractice has received scant scrutiny by law-

yers. They see it too infrequently in their practice. Physicians, on the other hand, are active changers of the status quo in respect to valuable property, the health of patients. They therefore carry a constant risk of responsibility for negligent injury, which makes it wise for them to know the pattern well.

This conviction has moved me to seek the meaning of the figures in the design, with the hope that I may (1) introduce the physician to the legal tradition and its relation to his profession, (2) present to him a concept, in miniature, of modern law in action, and (3) clarify the first principles which determine legal liability for so-called medical malpractice.

The well informed physician, perhaps, will want to add this information about malpractice to his general knowledge, without regard to any question of personal peril. I hope it will be possible to instruct him who is curious without causing the feeble pulse and the ashen pallor of profound shock. It is time to dispel the notion that a bizarre body of law makes a physician almost automatically liable once he is brought to court. This is not true. The present study is intended to be a "transfusion," rather than a letting, of blood; its aim is to strengthen confidence rather than to dissipate the feeling of security. The thoughts imparted may seem alien at first, but once received they become the property of the donee, who may put them into useful circulation in other spheres. There is no doubt that the law relating to the practice of medicine has long been the potential property of the physician, and he may perfect his title by reducing the subject matter to possession. The courts have held repeatedly, in actions for negligent medical conduct, that standards of "due care" are to be fixed not by court or jury but by testimony of qualified physicians. The conscientious practitioner of medicine usually does not believe that justice would be served by making his profession immune from the civil responsibility for negligent conduct which attaches without discrimination to the practitioner of law, to the architect, to the public accountant and indeed to every member of society. His true concern is that legal liabilities shall be fixed only on actual negligence competently proved, that realities rather than "apparent" truth shall be made the basis of every verdict, and this is a concern jointly shared with him by every right thinking lawyer.

Having had considerable contact with physicians, I feel warranted in saying: Do not order major operations for removal of moles! Do not diagnose without seeing the patient. Do not carp at law and lawyers, condemn courts or weigh policies of law without knowing what that law really is. A random or fragmentary impression is inadequate. The practicing lawyer knows that two inquiries must be kept separated in his mind; the actual and the ideal. What is the actual state of the law? This inquiry is of practical importance, for it governs current transactions. What would be an ideal state of the law? This question has pertinence in organizing influences to bring about needed change through appropriate legislation. But the latter inquiry proceeds blindly if not guided by a sound conception of what the law already is and wherein it may fall short. When sectioning a nerve to stop pain, the surgeon relies on his knowledge of anatomy to help him avoid cutting the nerves supplying important muscles. It would be inconceivable for a surgeon to undertake an operation without first trying to localize the lesion. The same critical point of view should be carried over in consider-

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ing proposed radical operations on the body of the law. The first requisite must be to localize the lesions and to learn more about the patient.

EVOLUTION OF THE LAW OF MEDICAL RESPONSIBILITY¹

LAW OF THE BABYLONIANS

Though the dwellers on the Euphrates knew nothing of the ruptured appendix or of how pernicious anemia can be held in check by liver therapy, a physician who caused an ill result was held liable, without further proof of fault. His responsibility, at least in respect to affirmative conduct, approached that of a guarantor. It was as though society hoped to squeeze some superhuman effort from the physician to cover the gaps in existing knowledge.

The Code of Hammurabi² (enacted about 2030 B. C.) declared:

215. If a doctor has treated a man for a severe wound with a bronze lancet, and has cured the man, or has opened an abscess of the eye for a gentleman with the bronze lancet and has cured the eye of the gentleman, he shall take ten shekels of silver.

216. If he (the patient) be the son of a poor man, he shall take five shekels of silver.

217. If he be a gentleman's servant, the master of the servant shall give two shekels of silver to the doctor.

218. If the doctor has treated a gentleman for a severe wound with a lancet of bronze and has caused the gentleman to die, or has opened the abscess of the eye for a gentleman with the bronze lancet and has caused the loss of the gentleman's eye, one shall cut off his hands.

219. If the doctor has treated the severe wound of a slave of a poor man with a bronze lancet and has caused his death, he shall render slave for slave.

220. If he has opened his abscess with a bronze lancet and has made him lose his eye, he shall pay money, half his price.

221. If a doctor has cured the shattered limb of a gentleman or has cured the diseased bowel, the patient shall give five shekels of silver to the doctor.

222. If it is the son of a poor man he shall give three shekels of silver.

223. If a gentleman's servant, the master of the slave shall give two shekels of silver to the doctor.

Thus, the physician was entitled to no compensation in the event that his attempted cure failed. By force of positive law, a "no cure, no pay" proviso was read into his every undertaking. Furthermore, if his well intended ministrations caused death of the patient or loss of an eye, severe punishment, retributory in character, was visited on him. It is interesting to note that no mention is made of punishing the physician whose dereliction consisted of an error of omission, of mere "watchful waiting" as contrasted with the affirmative act of the surgeon. Shall this be taken as evidence that some means was considered necessary to check the enthusiasm of the overzealous surgeon? The explanation more likely lies in the fact that the Babylonian law seemed to make causation the sole test of liability.

1. Mr. Justice Holmes, late of the United States Supreme Court, has said: "It is something to show that the consistency of a system requires a particular result, but it is not all. The life of the law has not been logic: it has been experience. The felt necessities of the time, the prevalent moral and political theories, intuitions of public policy, avowed or unconscious, even the prejudices which judges share with their fellow-men, have had a good deal more to do than the syllogism in determining the rules by which men should be governed. The law embodies the story of a nation's development through many centuries, and it cannot be dealt with as if it contained only the axioms and corollaries of a book of mathematics. In order to know what it is, we must know what it has been, and what it tends to become" (The Common Law, Boston, Little, Brown & Co., 1881).

2. Thatcher, O. J.: The Library of Original Sources, Chicago. University Research Extension, vol. 1, p. 439.

Causation was recognized only when the evil result followed a positive act (the "misfeasance" of the modern common law). It is a more refined thought that mere failure to act can constitute proximate causation, a concept that goes with a more advanced system of jurisprudence.

One also notes with interest that a class or "caste" distinction was applied to patients under the physician's care. When his dereliction affected only a slave, the redress lay not in penal retribution ("cut off his hands") but in compensation ("a slave for a slave").

LAW OF THE EGYPTIANS

In respect to the legal responsibility of the Egyptian physician, de Pastoret,³ in his "Histoire de la législation," has said:

General rules had been established for the treatment of patients. These were the result of carefully made observations which were guarded by the priests in books that were so respected that they were solemnly carried in the processions taking place on days of public fête. An absolute prohibition did not exist preventing the physician from applying a new truth, but if far from obtaining the salutary effects that he expected to procure he caused the death of his patient, he was obliged to pay his tribute for the misfortune or the boldness of having sacrificed the life of a citizen, by being beheaded. On the other hand, he was never liable to a patient confided to his care when he followed the rules laid down in the Sacred Books.

In the writings of Diodorus Siculus⁴ one finds this ruling set out:

For the physicians have a public stipend, and make use of receipts prescribed by the law, made up by the ancient physicians. And if they cannot cure the patient by them, they are never blamed. But if they use other medicines, they are to suffer death, inasmuch as the lawgiver appointed such receipts for cure as were approved by the most learned doctors, such as by long experience had been found effectual.

Society thus continued to demand a legal accountability based on causation, but the physician could gain protection by conforming his practice to established standards. Here was the first departure from the harsh rule of the old law that a physician must act at his peril. A new sanction had been substituted by which professional prudence was preserved to society, and society, in turn, gave up its old insistence on absolute liability. It may seem a poor bargain that made the physician conform to settled standards in order to gain this exemption, but one can imagine that the whole device was designed to keep medicine in contact with the priests and that the guarded precepts were administered with benevolence. In understanding how society in its regulation of the practice of medicine has merely traded sanctions without ever foregoing them completely, evolution of legal thought must be taken into account, but also one consideration which even yet motivates certain legal doctrines: the apprehension that in a particular case a particular physician may put aside the safe and conservative course to embark on experimentation for which consent has not been obtained. To this day, detached plaudits are given to the innovator in medical science, but the individual member of society shrinks from becoming a guinea pig except on his own heroic decision.

3. de Pastoret, C. E. J. P.: Histoire de la législation, Paris, J. Dalot, 1824, vol. 7.

4. Diodorus Siculus: Bibliotheca historica (The historical library of Diodorus the Sicilian, 15 books), translated by George Booth, London, Awnsham & J. Churchill, 1709, book 1, chapter 6.

LAW OF THE GREEKS

It is not easy to ascertain the exact law of the Greeks, but de Pastoret has affirmed the existence of principles of medical liability in it. Plutarch⁵ also indicated the recognition of such liability, in relating the story of Glaucus, a physician of Ephesus, who left his patient to go to the theater. Freed of restraining influences the patient dined excessively and died, and Alexander condemned the physician to be put to the cross for dereliction of professional duty.

EARLY ROMAN LAW

To the legal mind, the fabled grandeur of Rome rests most securely on the influential body of thought known as Roman jurisprudence. Negligent conduct as a criterion of legal liability first emerged in this system. In particular, the *lex Aquilia* repealed in part every prior statute which dealt with illegal damage, whether contained in the Twelve Tables or in other enactments. The date of appearance of the *lex Aquilia* is usually given as 287 or 286 B. C., but Girard expressed the belief that it can be placed only vaguely between the time of the Twelve Tables and the end of the seventh century.⁶

The Romans distinguished "*dolus*" (malice) from "*culpa*" (fault or negligence) and made the latter sufficient to maintain an action under the *lex Aquilia*. It is true that the proceeding tended to be of a penal or a criminal nature; yet, in addition, damages could be assessed on the "*delict*" to compensate the aggrieved party for the injury inflicted by the wrongdoer. When the defendant by his own person had acted directly on the plaintiff, the remedy lay under the *lex Aquilia*. If he had brought about the injury indirectly, the action, instead, was one in *factum*.

Under this law "*imperitia*" (inexpertness?)⁷ of the surgeon is treated as *culpa* (negligence).

In the Roman Digest jurists set out the *lex Aquilia*, and from this work a few sections pertinent to this study are reproduced:

6. Celsus says that it makes a great deal of difference whether the party kills or furnishes the cause of death; one who furnishes the cause of death not being liable under the *lex Aquilia*, but to an action in *factum*; and in this connection he mentions the case of a man giving another poison by way of medicine, who, he says, furnished the cause of death, just like one who puts a sword in the hand of a lunatic; this latter, he says, like the first, not being liable under the *lex Aquilia*, but to an action in *factum*.

7. But where a man throws some one off a bridge, whether the latter is killed by the shock itself, is at once drowned, or is overpowered by the force of the current and so dies from exhaustion, the offender is liable under the *lex Aquilia*, just as he would be if he had dashed a boy's head against a stone. Proculus says that, if a surgeon operates on a slave unskillfully, there is a good right of action, either on the contract or under the *lex Aquilia*.

8. The law is the same where a doctor makes a wrong use of a drug; it must be added that where a man operates properly, but omits further treatment, he will not get off free but is held to be guilty of negligence (*culpa*). 1. Again, where a mule-driver, owing to want of experience, is not able to hold up his mules, so as to prevent them from rushing ahead, if the

mules run over some one else's slave, the driver is commonly said to be liable on the ground of negligence. The same rule applies where he is unable to hold up the mules because he is not strong enough; and it cannot be held unjust that want of strength should be counted against a man on the question whether he was negligent, because people have no business undertaking tasks in which they know or ought to know that their want of strength will be a source of peril to others. The law is the same in the case of a man who from want of experience or want of strength should be unable to keep in a horse on which he is riding.

9. Again where a midwife gives a drug to a woman, who dies in consequence, Labeo makes this distinction: If she administered the drug with her own hands, she must be held to have killed the woman; but if she gave it to the woman for her to take it herself, there must be an action allowed in *factum*: and this is a sound opinion, as in the latter case the midwife furnished the cause of death rather than killed. 1. Where a man, either by force or suasion, administers a drug to any person, either as a draught or by injection, or where he rubs him with some poisonous preparation, he is liable under the *lex Aquilia*, just as the midwife is who administers a drug.⁸

I shall not digress here to discuss distinctions drawn between injuries to the body of a free man and those to the body of a slave. The *lex Aquilia* dealt with injuries to a man's slaves, but the freeman was able to seek analogous remedies. That the liability for damage occasioned by negligence was of general application is apparent from the "*Pandects of Justinian*."⁹ One reads:

If you give a cup to a jeweller to be filigreed and he breaks it through lack of adequate knowledge or experience, he is liable for wrongful damage; but if he breaks it not from lack of skill but because it was badly cracked, he may have a defense. Hence, most artisans who receive things of this kind stipulate that they will not do the task at their risk, which prevents an action on the contract or under this statute.²

From what has preceded it will be seen that:

1. Under Roman law, the physician incurred a legal liability when he was guilty of *culpa* (culpable conduct), or negligence.

2. This negligence could consist of: (1) an affirmative act ("*misfeasance*" of modern common law) or (2) a mere omission ("*nonfeasance*" of modern common law), which arose from (1) sheer ignorance due to lack of adequate training or experience (*imperitia*), (2) lack of skill in the particular undertaking, or (3) failure to attend or to care for the patient after a properly performed operation. In all cases, damage had to flow from the *delict* if it was to constitute legal injury.

3. If the physician caused injury by an intended direct contact, unconsented to by the patient, he could be held liable for *dolus* (equivalent to "*battery*" of modern law, a tort consisting of any unconsented touching of another, as when a surgeon performs an operation for which consent has not been obtained).

4. The action under the *lex Aquilia* for wrongful damage was dual in character: (1) it had penal aspects (punishment: an attribute of criminal law), and (2) it afforded reparation for the injury (compensation: an attribute of civil law).

5. The law had now advanced to the essential premise of modern jurisprudence: no responsibility for medical practice exists without proof of fault.

How often were these principles of medical liability actually applied? One cannot be certain but may infer infrequently from the violent indignation with which

5. Plutarch: *Lives of Illustrious Men*, translated by J. Dryden; revised by A. H. Clough, New York, the Modern Library, Inc., 1932, p. 851.

6. Justinian: *Imperatoris Justiniani institutionum*, translated by J. B. Moyle, ed. 4, London, Oxford University Press, 1906, vol. 2.

7. "*Imperitia*" in Roman law has often been translated as "*inexpert*" or "*unskillful*." Anton-Hermann Chroust, S.J.D., has expressed the belief that "*imperitia*" is more properly translated as "*ignorant, lacking in adequate knowledge, training or experience*," than as mere lack of skill.

8. Justinian: *Lex Aquilia*, Digest IX, 2, translated by C. H. Monro, London, Cambridge University Press, 1898.

9. Justinian: *Lex Aquilia*, p. 27.

Pliny¹⁰ (23 to 79 A. D.) asserted that in Rome a physician enjoyed the most complete impunity. He wrote:

... And then, besides there is no law in existence whereby to punish the ignorance of physicians, no instance before us of capital punishment inflicted. It is at the expense of our perils that they learn, and they experimentalize by putting us to death, a physician being the only person that can kill another with sovereign impunity. Nay, even more than this, all the blame is thrown upon the sick man only; he is accused of disobedience forthwith, and it is the person who is dead and gone that is put upon his trial.¹⁰

MODERN ROMAN LAW

By the "modern Roman law" I refer to the original Roman law as introduced into continental Europe around 1200 A. D., together with its elaboration and interpretations. Blended with a certain amount of indigenous law, it formed a basis of judicial decision in France and Germany and in other central European countries until the recent advent of the modern codes. This reversion to the Roman law enabled jurists of the middle ages to avail themselves of legal reason dating back to Justinian. They conformed their rich heritage to the needs of their own age by processes of judicial extension and amputation.

Under this law there were definite principles regulating the so-called free intellectual professions. The professional man, bound by contract to perform,¹¹ was responsible not only for malice (intentional injury) but for negligence and for lack of that knowledge and ability which the person employing his services rightfully could presuppose him to have. One reads:

Whoever employs the services of a person who makes a profession of the possession of an art or science, may, disregarding particular circumstances, presuppose that this person has such knowledge and abilities as one might acquire in such art or science by usual industry and conscientious application. There is no right to presuppose particular gifts or the endowments of genius.¹²

This mutual contractual relation concerning the use and the services was not altered by the fact that the person rendering the services had received from the state to this end an approbation, concession or employment, such as was granted the advocate, the notary public, the physician and the teacher.¹³

Thus, the later Roman law makes even clearer the proposition that fault is the test of liability, and it lays down a standard. The measure of care and skill which the member of the public can rightfully expect is to be fixed not by the special talents of genius but by the more modest level of attainment of the average practitioner. It has been the conscious policy of the modern law of torts¹⁴ to encourage initiative by saying to the actor: Your responsibility shall be fixed at the lowest standard compatible with a fair protection of the person acted on.

10. Pliny the Elder: *The Natural History of Pliny*, translated by J. Bostock and H. T. Riley, London, G. Bohn, 1856, book 22, chapter 7.

11. Contract in Roman law differs from the Anglo-American conception of contract in dispensing with the necessity for a consideration. By Roman law, the mere assumption of performance under mutual agreement, even when nothing is to be paid for the service, constitutes a contract. Under Anglo-American law, an agreement not supported by a consideration is a "nudum pactum" and unenforceable.

12. Windscheid, Bernhard: *Lehrbuch des Pandektenrechts*, ed. 6, Frankfurt on the Main, Rütten & Loening, 1887, vol. 2.

13. In accord is the modern Anglo-American law. A municipal government, without its consent, cannot be sued for injury negligently inflicted by a physician in its employ. But this immunity of the government to suit does not extend to the physician, who remains subject to personal liability for his torts. Windscheid.¹²

14. Torts: such invasion by one person of the rights of property or personality of another as the law will recognize as redressible wrongs without a showing of any contract relations between the actor and the person acted on.

COMPARATIVE MODERN LAW

THE LAW OF GERMANY

To round out the survey of the legal evolution of medical responsibility, one should look at the present doctrines of countries other than the United States. The most cursory inspection shows that they bear a striking resemblance to those of Anglo-American law. This resemblance is of peculiar interest when one considers that the Continental "codes" are not altogether a continuation of old legal traditions but include some points of departure from them.

Under the new German law, resting on the civil code of 1900, one finds that:

Where a performance is based on a contract, the general success of which is uncertain, as for instance in the case of a dangerous operation, then we have to assume in a case of doubt that only the first success, namely, only the operation as such, but not its successful outcome, is contained in the contractual promise.¹⁵

With regard to a physician's liability for operating on an unconscious patient without his consent,¹⁶ one reads:

No doctor is liable for battery and assault, if this act is done in the well understood interest of the injured or in conformity with his real will or that which rightfully could be presupposed under the circumstances as his real will.¹⁷

A physician who by his lack of skill in the application of a medical treatment causes the death of a patient not only is liable for breach of contract but is liable in tort. (Paragraph 823, section 1, of the B. C. G. [German Civil Code] applies.)

On March 14, 1911 the Supreme Court of Germany decided a case of alleged negligence committed by a physician. In treating an inflammation of lymph glands in the neck, he used an electric needle to puncture the skin and inflicted a deep burn, which left a deforming scar.¹⁸ The court's decision was as follows:

The Supreme Court finds that, in spite of the contention of the defendant, he is not only liable for breach of contract but also liable in tort. The defendant is guilty of a violation of the principles of medical science in that he applied in the treatment of a harmless ailment of the plaintiff an inadequate method. In other words, he carried out the chosen method in a faulty manner, in spite of the fact that he should have known better if he had taken into consideration every fact. By acting thus negligently, the defendant not only committed a breach of contract but also a tort. He should have known that through this deep burn he would cause a scar and produce unnecessary pain as well as a deformity of plaintiff.

The Court holds, furthermore, that the doctor, by virtue of his profession, is under an obligation to avoid fault in the application of treatment as well as infraction of the rules of medical science while treating patients. It makes no difference whether a contractual relationship between doctor and patient be presupposed or not. He is liable for tort under paragraph 823, sec. 1, of the German Civil Code. If he, in violation of his professional duties, illegally violates life, limb or health, he is liable to the injured person for damages, especially for immaterial damages arising from pain, suffering, etc.

Any illegality or liability on the part of the doctor under 823 is excluded only if the patient or his legal representative has consented to the operation. See "Decisions in Civil Litiga-

15. Enneccerus, L.; Kipp, T., and Wolff, M.: *Lehrbuch des bürgerlichen Rechts*, Marburg, C. K. Braun, 1923, ed. 20, vol. 1, p. 444.

16. Note that, under the German practice, litigants' names are omitted by customary policy, the court's interest being only in the technical aspects of the law as a scientific problem and not in the personalities of the litigants.

17. Enneccerus, Kipp and Wolff: *Lehrbuch des bürgerlichen Rechts*, p. 654.

18. *Jurist. Wehnschr.* 85: 449, 1911.

tions of the Supreme Court of Germany," vol. 62, p. 431 and "Sceuffert's Archiv," vol. 62, p. 450. But to an unnecessary and painful treatment and the deformity resulting therefrom, the plaintiff and its parents did not agree.

THE LAW OF FRANCE

In the "*Traité des obligations en général*," published in 1931, the French law is laid down with clarity, thus:

The responsibility of a doctor toward his client comprises certain factors. The doctor enters into a contractual obligation concerning means but not the final result. He is therefore not responsible if his patient does not get well. He promised only attentive care and the patient must prove the fault of the doctor. He also has equally to prove the causal relationship between the fault and the damaging act.¹⁹

The following exception is made: If the physician has promised to visit a sick man and omits such a visit, he is absolutely responsible for damage arising therefrom. But the patient must prove the causal relation between the absence and the damage, and the physician may justify himself by establishing that it was impossible for him to come.

As to what concerns the treatment, the physician is responsible for his lack of prudence and for his negligent actions. But it seems that, to make out a case of negligence, an act must be involved which a person exercising his profession with due care and skill would not have committed. Important in this connection also is the fact that the general status of development of medical science at the time of the act is to be taken into consideration. But the physician who tries what is considered medically impossible at the time and place and employs a method which would be used in a similar disease, thereby displaying an initiative which might be successful, does by no means automatically incur responsibility.

There is a scientific domain in which the judge has no right to interfere. As the Court of Cassation (highest appeal court of France) said:

It is up to the wisdom of a judge not to enter too keenly into the examination of medical theories and methods and to pretend to discuss questions of pure science. The problem is one of general rules, of good sense and of wisdom to which one has to conform above all in the exercise of every profession, and under this heading the doctors are subjected to the general application of law ("*au droit commun*").²⁰

In the "*Traité pratique de droit civil français*," published in 1930, a further statement of present French law is found:

The doctor who has accepted the care of a patient is responsible under contract if he neglects to give him his attention at a wished time, or abandons him during the treatment without being compelled to do so by a major (irresistible) force or by the behavior of the patient himself.

He is also responsible, in conformity with the general application of the civil law, for all the damage caused by his lack of prudence or his negligence in diagnosing the malady, in applying treatment, or in performing an operation. As to the claim that doctors should only be responsible for gross negligence, the Court of Cassation has always refused to lay down such a particular basis for the liability of a doctor.²¹

Liability does not follow mere mistakes, one reads:

... but this "exemption" does not apply if the mistake for which the doctor is reproached results from negligent application of the treatment or from negligent execution of an operation, particularly if such conduct is called negligent by common medical consent. The same is true if a material error

exists in the writing out of a prescription; in the administering of one medicament in the place of another; in case the doctor leaves a compress or instrument behind in the wound; if he hands out a certificate after an insufficient physical examination or without an examination; where he fails to tell a nursing mother that the nursing committed to her care is infected with a contagious disease; where he approaches with a thermocautery a skin still moist with alcohol. Without doubt, the most diligent person is susceptible to an unfortunate omission, but, even so, since every one is liable under such circumstances, there is no reason why a doctor should enjoy a lesser degree of responsibility.²²

LAW OF JAPAN

Japan did not experience a gradual development of its present social and judicial institutions. She passed suddenly from a state of medieval feudalism to a régime of representative government. Her imitation of the industrial system of Western civilization ushered in a new and more complex social order.²³ To meet this situation, the Japanese civil code was enacted in 1891. Under its tort provisions (articles 709 to 724), a physician's legal responsibility approximates that which he carries under the modern law of other countries.²⁴

LAW OF ENGLAND

As will later appear, the common law of England must be recognized as the remote ancestor of the present American law of malpractice. From time to time, reference will be made to important decisions of the English and the Dominion courts, but for the moment it will suffice to say that subsequent judicial evolution of the subject has in main been parallel to that of the American law.

LAW OF THE UNITED STATES

Elucidation of this law will be the chief concern of later phases of the present study. At this juncture it may fairly be said that, owing to abundant litigation in America, the courts have evolved the modern law of the subject with greater refinement than has any other system of jurisprudence. Taking from the English common law the premise that a physician may not be held a guarantor but is answerable only for fault, the courts have introduced many special doctrines. Among these, "freedom of choice among contending methods," "lessened duty of care in emergencies," "schools of practice," "error of judgment" and rigid requirements of proof of the "delict" represent gracious gestures of the law to reduce the legal responsibility of the physician to a minimum.

Both English and American law draws a sharp distinction between civil and criminal responsibilities. The two cannot be asserted in the same proceeding, and while ordinary negligence proved by a preponderance of the evidence will sustain a civil suit for compensatory damages, a criminal conviction must rest on gross negligence of a much more opprobrious character proved beyond a reasonable doubt.

SUMMARY

It has been shown that in the Babylonian law the physician was held liable as a guarantor, irrespective of fault, and his failure was visited with criminal penalties. The Egyptian law continued his strict liability but gave him exemption if he conformed to the preserved precedents of the priests. The Greek law

19. Demogue, René: *Traité des obligations en général*, Paris, Rousseau & Cie, 1931, vol. 6, p. 184.

20. *Ibid.*, vol. 6, p. 184.

21. Planiol, Marcel, and Ripert, Georges: *Traité pratique de droit civil français*, Paris, Librairie générale de droit et de jurisprudence, 1930, vol. 6, p. 717.

22. *Ibid.*, vol. 6, p. 718.

23. This idea was expressed by Count Hayashi Tadasu in his introduction to the Japanese civil code.

24. De Becker, J. E.: *Annotated Civil Code of Japan*, ed. 1, Yokohama, Kelly & Walsh, Ltd., 1909, vol. 2, p. 272.

made no notable advance but affirmed the existence of legal liability. The Romans, under the *lex Aquilia* and analogous remedies, made *culpa* (fault) and *dolus* (malice) the bases of medical liability. The doctrine of negligence, which was unknown to earlier systems of jurisprudence, emerged. Both penal and civil remedies were granted in respect to the delict in a single action. These more liberal rules of medical responsibility were preserved and elaborated by the modern Roman law. They were carried forward into current European law by the modern codes of Germany and France. Similar provisions appear in the modern law of Japan by virtue of the new civil code, enacted in 1891. The English common law arose as an indigenous system by fusion of diverse legal elements. It was in no sense a direct product of the Roman law. It has never been codified. Yet it, too, eventually settled on similar principles of torts as the proper measure of the physician's legal responsibility. It gave an action of "trespass" for battery (intended touching of another for which consent has not been obtained) and an action of "trespass on the case" for negligence (unintended consequential injury).

Soon after the Revolutionary War or at some later date, almost all the states of the Union provided by constitution or statute that the English common law should be taken as a basis of decision, subject to modification to meet conditions of the new world. American courts thus received the English tradition, elaborated it and developed new doctrines reducing the responsibility of the physician to the minimum consistent with fair protection of the patient. Both countries parted company with the Roman law in refusing to permit the trial of civil and criminal proceedings in a single action.

In early law, society used penal sanctions as its chief method of regulating the medical profession. Today, "medical practice acts," flowing from the legislative function, set up licensing standards capable of testing knowledge but not care or skill. Criminal charges for malpractice are now only occasionally brought by the state. At present, it is the civil action against the licensed physician for some dereliction in point of care or skill which is becoming of preponderating importance. The civil action for damages enforces only incidentally the standards of medical practice. Its prime object is to afford compensation under the law of torts to the patient injured by some dereliction of his physician. Usually, but not always, this dereliction consists of negligence rather than of some other variety of improper conduct.

One may thus say that the principle of medical responsibility goes back to antiquity in unbroken continuity, that it meets a universal demand put forward in all societies and all countries and that its evolutionary trend has been from absolute liability to limited liability conditioned on fault. The responsibility of the physician has been lightened by special doctrines evolved in American courts. These make just concessions to the exigencies of medical practice and to the fact that medicine is often the exercise of an art guided by judgment rather than an infallible science. The trend has also been from penal sanctions (criminal punishment) to civil compensation. During these successive epochs the law has applied the same, or even more rigorous, doctrines of liability to the members of other classes of society.

(To be continued)

GLANDULAR PHYSIOLOGY AND THERAPY

OVARIAN TUMORS OF ENDOCRINE NATURE

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BALTIMORE

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Not so many years ago the general concept of tumors was that they are collections of cells which have cut themselves off from all functional activity, living in a purely parasitic way. It is known now that this is not invariably true and that a considerable degree of functional activity may be retained by the cells of certain tumors, especially those of highly differentiated type. In the case of neoplasms of the endocrine glands such a persistence of function has long been recognized, probably because its manifestations are more striking, involving tissues and functions far removed from the tumor site itself. Many examples of functional endocrine tumors are now adducible as producing well established clinical syndromes. Among these may be mentioned adenoma of the eosinophilic, basophilic or chromophobic cells of the anterior lobe of the pituitary and certain tumors of the thyroid, parathyroid and adrenal (both cortex and medulla) glands and of the gonads, both male and female.

This article will concern itself only with certain functioning tumors of the ovary, long recognized as one of the endocrine glands of the body. The two ovarian hormones are estrogen and progesterone, produced by the follicle and the corpus luteum, respectively. Of these, estrogen may be considered the more fundamental, since it is responsible for the characteristic female secondary sex characters in addition to its role in menstruation and in pregnancy. Progesterone, on the other hand, plays an important role in the pregestational portion of the cycle and in gestation itself. The fact, therefore, that certain ovarian tumors are characterized by estrogenic activity would at once suggest an origin from some phase of follicle development, as is indeed the case. The occasional cases in which progesterone effects are produced by ovarian tumors would in the same way suggest the lutein cell as the source of the hormone, as it normally is, in the ovary at least. In addition to these, however, it will be seen that certain alien cells which may occur in the ovary may give rise to still other hormones, such as the androgenic principles and thyroxine.

The ovarian tumors which have been shown to possess endocrine activity are (1) granulosa cell carcinoma, (2) thecoma, (3) luteoma, (4) arrhenoblastoma, (5) adrenal ovarian tumors and (6) the so-called struma ovarii or thyroid tumor of the ovary. All of these, with the exception of the last two, are looked on as of dysontogenetic origin, arising from abnormalities in the early stages of gonadogenesis. For an appreciation of their endocrine effects, and even more for the interpretation of their varied histologic structure, some understanding of these early stages in the development of the ovary is absolutely essential. This subject can be set forth here in only the briefest fashion and with full appre-

ciation of the fact that on certain points there is still considerable difference of opinion among embryologists.

At a very early embryonic phase there develops on the anterior or ventral surface of the wolffian body a grouping of cells which constitutes the anlage of the sex gland, testis or ovary, as the case may be. The first point to stress is that in this early, or undifferentiated, stage it is impossible to determine whether this nucleus of cells will differentiate as testis or as ovary. Incidentally, tumors may arise in later life from cells which in this undifferentiated phase are cut off from the germinal stream, as it were, while the surrounding cells undergo their later differentiation into ovarian or testicular structures. These tumors constitute the group designated as seminoma when in the testis and as dysgerminoma when in the ovary. The histologic structure of the male and female tumors is identical. As would be expected from their origin, they have no endocrine effect whatever.

At a later stage the cells in the gonadal area become differentiated and arranged in cords of zigzag appearance which converge toward the hilus, where in the male they link up with mesonephric structures to complete the testicular scaffolding. The cords become canalized to form the seminiferous tubules, and the wolffian duct itself becomes the vas deferens. From the standpoint of the female, with which this article is more directly concerned, it is important to remember that the same cordlike differentiation occurs as in the male, though there is no link-up with mesonephric structures and the whole process is evanescent.

Over the fossil remains of this male type of differentiation, to put it figuratively, there then occurs a second differentiative process, the cells of the mesenchyme differentiating into cells of either granulosa or thecal type and arranging themselves in clusters about the germ cells to form the primitive follicles. In this typically female phase, however, cells may be left behind, especially in the region of the rete ovarii, which have persisted from the earlier male type of differentiation and which may therefore retain a potentiality to develop along masculine lines. It is from such male-directed cells in the ovarian medulla that, according to Meyer,¹ the masculinizing tumor, or arrhenoblastoma, has its origin. His explanation has been generally accepted, and it gives at least a satisfactory working theory of the histogenesis of these tumors. It is quite possible, however, that the real explanation goes deeper than this, for comparatively little is as yet known of the mechanism of sex differentiation. Especially suggestive is the close embryologic relationship of the ovarian medulla and the adrenal cortex, and the fact that the biologic effects of certain adrenal cortical lesions are so similar to those of arrhenoblastoma.

Robert Meyer,¹ to whom is due so much in the classification of these dysontogenetic tumors of the ovary, ascribes the origin of the second, or feminizing, group, the granulosa cell carcinoma, to masses of redundant granulosa cells or granulosa cell rests (granulosaballen) left over in the differentiative processes of early follicle formation. The evidence of recent years, however, indicates that this view must be modified. While it was formerly held that the follicular epithelium is derived from invagination of the germinal epithelium, the work of Fischel, Politzer and others has shown quite clearly that both granulosa and thecal elements are formed by

differentiation of ovarian mesenchyme in situ, and these embryologic researches are borne out by studies on the experimental production of such tumors with roentgen rays.² In other words, from the ovarian mesenchyme tumors may develop which morphologically are made up of either granulosa or thecal cells or of a mixture of the two. If a generic name were to be coined for this entire feminizing group, a good one would seem to be "feminizing ovarian mesenchymoma." Granulosa cell carcinoma and thecoma therefore have a common origin, and while they show certain structural differences, they produce similar feminizing effects and should therefore not be as sharply separated as they have been by some authors.

In certain granulosa or thecal tumors, either partial or complete luteinization has been noted. The folliculome lipidique described in 1910 by Lecène belongs to this group, and a considerable number of tumors of this group have been described. When the lutein transformation is complete, the tumor becomes a luteoma, and the majority of tumors coming under the latter designation are probably derived in this way. With lutein transformation of the granulosa or thecal cells, progesterone effects on the uterine mucosa may be noted. There are, however, many exceptions to this rule, and, although knowledge on this point is still very incomplete, it would seem that morphologic and functional lutein changes are not always parallel.

The subject of luteoma is further confused by the fact that masculinizing effects have been reported in association with certain tumors of this histologic group. The chief difficulty in the interpretation of such tumors has been to distinguish them from those of adrenal origin. Schiller³ believes that, with the exception of a very few cases, the adrenal origin is the correct explanation for this masculinizing group, and with this view I agree.⁴ Finally, in the group of ovarian tumors in which an origin from adrenal ovarian rests seems indubitable a masculinizing syndrome is produced which is practically identical with that brought about by arrhenoblastoma.⁵

It is obvious that knowledge of the histogenesis of the dysontogenetic functioning tumors of the ovary is still very incomplete, and hence it is not surprising that in certain cases there is difficulty, with difference of opinion as to the proper pathologic classification. A discussion of the gross and microscopic pathologic observations is beyond the scope of the present paper but may be found in many readily available papers, such as those of Schiller,⁶ Novak and Brawner,⁷ Novak,⁸ Norris,⁹ and Melnick and Kanter.⁹

CLINICAL CHARACTERISTICS OF GRANULOSA CELL CARCINOMA AND THECOMA

Granulosa cell carcinoma and thecoma may occur at any age, and the endocrine effects produced by them vary chiefly according to the age of the patient. They

2. Geist, S. H.; Gaines, J. A., and Pollack, A. D.: Experimentally Active Ovarian Tumors in Mice, *Am. J. Obst. & Gynec.* **38**:786 (Nov.) 1939. Traut, H. F.; Kuder, Alberta, and Cadlee, J. F.: Study of Reticulum and of Luteinization in Granulosa and Theca Cell Tumors of the Ovary, *ibid.*, p. 798.
3. Schiller, Walter: Zur Frage der Specificität vermannlicherender Tumoren, *Arch. f. Gynäk.* **160**:344 (Dec. 19) 1933.
4. Schiller, Walter: Masculinizing Tumors of the Ovary (Arrhenoblastoma), *Am. J. Obst. & Gynec.* **36**:840.
5. Schiller, Walter: Pathologie und Klinik der Granulosazelltumoren, Vienna, Maudrich, 1934.
6. Novak, Emil, and Brawner, J. N.: Granulosa Cell Tumors of the Ovary: Clinical and Pathological Study of Thirty-Six Cases, *Am. J. Obst. & Gynec.* **28**:637 (Nov.) 1934.
7. Norris, E. H.: Arrhenoblastoma, *Am. J. Cancer* **32**:1 (Jan.) 1936.
8. Melnick, P. J., and Kanter, A. E.: Theca Cell Tumors of the Ovary, *Am. J. Obst. & Gynec.* **27**:41 (Jan.) 1934.

1. Meyer, Robert: Pathology of Some Special Ovarian Tumors and Their Relation to Sex Characters, *Am. J. Obst. & Gynec.* **22**:697 (Nov.) 1931.

are not by any means uncommon, making up something like 10 per cent of all solid malignant tumors of the ovary. In the Laboratory of Gynecological Pathology of the Johns Hopkins Hospital we now have more than 80 specimens of this group. The endocrine effects are dependent on the production of estrogen by the tumor cells, as has been shown by hormone assays and by the demonstration of the estrous effects produced by injection or implantation of the tumor tissue in castrated animals.

Effects in Children.—A considerable group of granulosa cell tumors has been reported in children.¹⁰ It is known that the development of secondary sex changes at puberty, as well as the initiation of the menstrual function, is due to the awakening of estrogenic function at that phase. The estrogenic function of a granulosa cell tumor which develops in infancy or childhood, therefore, brings about an abnormally early appearance of these puberal phenomena, constituting one group of cases, though numerically not the largest, of precocious puberty and precocious menstruation. The breasts become hypertrophic, more or less regular menstruation is initiated, genital and axillary hair growth appears, and the external genitalia assume the puberal type, with also hypertrophy of the uterus.

With removal of the tumor, these symptoms regress completely, a crucial demonstration of the causative role of the tumor hormones in their production. Indeed, in at least one recorded case in which such regression occurred a second reappearance of the precocious symptoms was found to be due to a recurrence of the tumor in the other ovary. Removal of the recurrent growth was followed by disappearance of the abnormal symptoms.

Effects During the Reproductive Epoch.—As might be expected, the effects of granulosa cell growths during reproductive life are far less striking than when they are projected against the bare estrogenic background of childhood. During menstrual life large amounts of estrogen are present in the circulation, and the secondary sex characters have long been present. The tumor, therefore, produces only a quantitative increase of estrogen, a "hyperestrogenism" like that found in many cases of functional bleeding and in at least some cases of amenorrhea. Menstruation may therefore be normal or excessive, or it may be absent for long periods.

Effects in Postmenopausal Life.—When such a tumor develops late in life, periodic uterine bleeding is usually observed and is interpreted by the patient as menstruation, though it is not associated with ovulation. The normal senile uterus is often hypertrophied to a size like that observed in reproductive life, and the endometrium often shows marked hyperplasia. Breast changes are not seen, presumably because of incapacity of the senile breast to respond to estrogenic stimulation as does the immature breast of the young child. Removal of the tumor not only brings about cessation of menstruation but may even be followed by vasomotor disturbances like those seen at the normal menopause (Novak; Dworzak; Schulze).

CLINICAL CHARACTERISTICS OF ARRHENO- BLASTOMA

The masculinizing group of tumors is far less common than the feminizing, the total of reported cases being not over 60. As with other tumors of the dysonto-

genetic variety, there can be no question that the rarity is not as great as published figures would indicate, for the reason that many pathologists and clinicians have not yet familiarized themselves with the characteristics of these neoplasms, so that the tumors often pass unrecognized.

Arrhenoblastoma occurs usually in young women and produces a train of symptoms characterized first by certain defeminization phenomena, followed by others which are definitely masculinizing. The history of a case of my own may be considered typical of the group. A woman of 35, previously of normal feminine type and with previously normal menstruation, had ceased menstruating eleven months before she was seen. There had been one full term pregnancy seven years previously. Shortly after the onset of her amenorrhea the breasts had begun to regress and at the time of examination were quite flat. She had lost slightly in weight, and her contour had lost the typical feminine curves. None of the thus far enumerated symptoms can be considered masculinizing. They are, however, to be interpreted as defeminizing, subtracting something from the characteristic feminine make-up.

Some months after the onset of amenorrhea, the patient noticed a rather heavy growth of downy hair over the face, extremities and abdomen, and this hypertrichosis had gradually increased. The previously high-pitched voice became deep and rough, and the patient had, in fact, been treated for many months for a supposed laryngitis. Still later the clitoris had become moderately enlarged. Pelvic examination revealed a rounded solid movable tumor about the size of a golf ball in the right ovary. Such a finding, plus the train of symptoms noted, left little doubt as to the diagnosis of arrhenoblastoma, which proved correct.

The removal of an arrhenoblastoma is followed by reappearance of menstruation, almost always about one month after operation. Other feminine characteristics, such as breast development and body contour, are soon restored. The positive masculinization phenomena are much slower to disappear, and regression is often incomplete. Hypertrichosis in some cases, as in the one described, may disappear within a few months, but the disappearance of the hair may be much slower and very incomplete. The same thing applies to the voice changes and the hypertrophy of the clitoris. If the latter is extreme, amputation may be necessary.

It should be remembered that mildly intersexual conditions of congenital origin are very common in women and that in such women simple ovarian tumors may develop in later life, possibly leading to an incorrect suspicion of arrhenoblastoma. With the latter, however, the abnormal sex phenomena occur characteristically in women who previously have been normal in this respect. The clinical test of the causal role of the tumor is the regression of the symptoms after removal of the growth. As with granulosa cell carcinoma, a double check has been possible in at least one case, in which such regression followed removal of an arrhenoblastoma, with reappearance of symptoms some years later because of a recurrence of tumor on the other side, and again disappearance of symptoms after removal of the second tumor.

ADRENAL TUMOR OF THE OVARY

The very rare adrenal tumor of the ovary is worth at least brief mention, if for no other reason than that it can produce a clinical syndrome identical with

¹⁰ Novak, Emil: Granulosa Cell Ovarian Tumors as Cause of Precocious Puberty, *Am. J. Obst. & Gynec.* 26: 505 (Oct.) 1933.

that of arrhenoblastoma. Only a small group of tumors of this type have been reported, apparently rising from adrenal tissue rests in ovaries.¹¹ Mention has already been made of the intimate embryologic relation between the anlagen of the adrenal cortex and the ovarian medulla, so that it is not surprising that certain adrenal tumors produce sex effects exactly similar to those of arrhenoblastoma. As already mentioned, it seems probable that most of the tumors reported as luteoma producing masculinization phenomena have probably been of adrenal origin.

THYROID TUMOR OF THE OVARY (STRUMA OVARII)

A rather rare type of ovarian tumor is the so-called struma ovarii, made up entirely or in part of thyroid tissue.¹² Such neoplasms are looked on as teratomas in which thyroid tissue has overridden and perhaps blotted out other teratomatous elements. The thyroid tissue in such tumors is quite typical histologically, and in some cases studies of the iodine content have added further confirmation on this point. Finally, in a few recorded cases the thyroid tissue of the tumor was apparently functionally active, producing clinical evidences of hyperthyroidism.¹³

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Council on Pharmacy and Chemistry

HUMAN CONVALESCENT POLIOMYELITIS SERUM AND HUMAN CONVALESCENT MUMPS SERUM

Preliminary Report of the Council

HUMAN CONVALESCENT SERUMS ARE PREPARED BY A NUMBER OF SERUM CENTERS, SOME OF WHICH OPERATE UNDER LICENSE OF THE U. S. PUBLIC HEALTH SERVICE. THE SAMUEL DEUTSCH CONVALESCENT SERUM CENTER, MICHAEL REESE HOSPITAL, CHICAGO, IS THE ONLY CENTER WHICH HAS PRESENTED FOR THE COUNCIL'S CONSIDERATION HUMAN CONVALESCENT POLIOMYELITIS SERUM AND HUMAN CONVALESCENT MUMPS SERUM. THE FOLLOWING PRELIMINARY REPORT INDICATING THE PRESENT STATUS OF THESE TWO SERUMS HAS BEEN PREPARED AND PUBLICATION AUTHORIZED BY THE COUNCIL.

OFFICE OF THE SECRETARY.

HUMAN CONVALESCENT POLIOMYELITIS SERUM

Of the many methods that have been tested to prevent and to treat anterior poliomyelitis there are included the antistreptococcic serum of Rosenow,¹ the chemicals tried by Schultz,² including alum, tannic acid, picric acid, neutral acriflavine, zinc sulfate, vitamin B compounds, viosterol, sodium sulfanilsulfonate and sulfapyridine (the first five appearing effective prophylactically in monkeys when applied to the olfactory mucosa), roentgenotherapy,³ malarial therapy⁴ and potassium

chlorate.⁵ However, not one has seemed to find the favor accorded to human convalescent serum by other investigators except in the hands of the individual investigators responsible for the suggested treatment.

According to McKinnon,⁶ previous to 1927-1928 the use of convalescent serum in the treatment of preparalytic poliomyelitis was based on the demonstration in 1910 of neutralizing bodies in the serum of monkeys and individuals recovered from the disease, a report in the same year by Flexner and Lewis on the prevention of paralysis in monkeys by the intraspinal injection of serum within twenty-four hours after the inoculation, and other similar reports. However, other workers often failed to support the previous observations and it was not until 1927-1928 that a renewed interest in the use of serum was manifested. During that time there appeared independent reports, clinical and experimental, from widely separated places, which seemed to indicate that the serum was worthy of consideration. But inconsistencies in duplicating previous results were again observed and many clinicians and laboratory investigators were skeptical about the therapeutic value of convalescent poliomyelitis serum. Because of this skepticism, investigations using controls were conducted in the Eastern states. Some patients were given serum, others were given only routine treatment. An analysis of the results failed to show any decrease in paralysis or fatality in the serum treated cases, and yet many physicians, because of their observations, were convinced that the serum had some value. Apart from the ardent supporters of serum therapy, the common attitude among the less conservative physicians was probably hypothetically expressed as "Serum may not be of any value but neither is it likely to cause harm. Since we have no other agent, what have we to lose by trying this type of therapy?"

Aycock⁷ and Fischer⁸ were of the opinion that the end results of the serum treated cases were no better than those of the control cases. However, it was felt that this was not a contraindication to further trials with serum and they emphasized the need for further investigation with an adequate arrangement for controls. Analyzing all their available data failed to give a satisfactory answer to the problem, and the reports that subsequently appeared were both favorable and unfavorable for the use of convalescent human serum in the treatment of anterior poliomyelitis.

Levinson and his co-workers⁹ have reported favorably in several instances on serum therapy while working at the Samuel Deutsch Convalescent Serum Center, and in a review of previous literature¹⁰ they pointed out that many investigators had found serum therapy to be of definite benefit in the preparalytic stage. With a group of 130 patients diagnosed as having anterior poliomyelitis and treated with serum, they obtained a mortality rate of less than half the mortality observed for the patients in the same city who received no serum. Unfortunately there were no controls in their own investigation for accurate comparison. They also reported that a frequent prompt decrease in temperature and other symptoms occurred and the resulting paralysis was lessened in severity following serum therapy. A later publication by Levinson¹¹ further pointed out the low mortality rate that appears to follow the use of serum. In discussing this paper,¹² one clinician reported two cases from his own experience which appeared to be outstanding in response to serum therapy. A still later publication¹² reported that less

11. Rottino, Antonio, and McGrath, J. F.: Masculinovoblastoma: Primary Masculinizing Tumor of the Ovary (So-Called Large Cell Variety—Hypernephroid—Luteoma), *Arch. Int. Med.* **63**: 686 (April) 1939. Saphir, William, and Parker, M. L.: Adrenal Virilism, *J. A. M. A.* **107**: 1286 (Oct. 17) 1936. Schiller, Novak.⁴

12. Plaut, Alfred: Struma of Ovary, *Arch. Path.* **10**: 161 (July) 1930.

13. Moench, G. L.: Thyroid Tissue Tumors of Ovary, Surg., Gynec. & Obst. **49**: 150 (Aug.) 1929.

1. Rosenow, E. C.: The Early Diagnosis and Treatment of Poliomyelitis with Poliomyelitis Antistreptococcic Serum, *Illinois M. J.* **76**: 144 (Aug.) 1939.

2. Schultz, E. W.: Chemical Agents in the Prevention and Treatment of Experimental Poliomyelitis, *Am. J. Pub. Health* **30**: 175 (Feb.) 1940.

3. Recovery Without Sequels After Serotherapy by Intraspinal Route Associated with Roentgenotherapy: A Case, *Bull. et mém. Soc. méd. d. hôp. de Paris* **54**: 788 (May) 1938.

4. Chieffi, A.: Considerazioni sulla malarioterapia nella malattia di Heine-Medin desunte dall'osservazione di alcuni casi di associazione malaria-poliomielite anteriore acuta, *Riv. di clin. pediat.* **37**: 289 (April) 1939.

5. Saucier, J., and Stewart, O. W.: Potassium Chlorate in the Treatment of Poliomyelitis, *Canad. M. A. J.* **42**: 19 (Jan.) 1940.

6. McKinnon, N. E.: Symposium on Anterior Poliomyelitis: Convalescent Serum Therapy, *Canad. Pub. Health J.* **28**: 434 (Sept.) 1937.

7. Aycock, W. L., in discussion on Park, W. H.: Therapeutic Use of Antipoliomyelitis Serum in Preparalytic Cases of Poliomyelitis, *J. A. M. A.* **99**: 1056 (Sept. 24) 1932.

8. Fischer, A. E.: Human Convalescent Serum in Treatment of Preparalytic Poliomyelitis: Comparison of 447 Treated and 102 Control Patients in New York City in 1931, *Am. J. Dis. Child.* **48**: 481 (Sept.) 1934.

9. Levinson, McDougall and Thalheimer.¹⁰ Levinson.¹¹ Levinson, Penruddocke and Wolf.¹²

10. Levinson, S. O.; McDougall, Clarice, and Thalheimer, William: Acute Anterior Poliomyelitis in the Chicago Area in 1931: Symptomatology, Clinical Observations and Convalescent Serum Therapy, *J. A. M. A.* **99**: 1058 (Sept. 24) 1932.

11. Levinson, S. O.: A Five Year Review of Anterior Poliomyelitis in the Chicago Area, *Illinois M. J.* **70**: 296 (Sept.) 1936.

12. Levinson, S. O.; Penruddocke, E., and Wolf, A. M.: Human Convalescent Serum and Its Application to Acute Infectious Diseases, *Illinois M. J.* **72**: 514 (Dec.) 1937.

than 2 per cent of some 200 consecutive patients with poliomyelitis treated with convalescent serum had residual paralysis. This was compared with the 20 per cent found among untreated patients. The success apparently depended on early diagnosis and early serum administration in large doses (from 100 to 200 cc. intravenously as an initial dose) and close observation of the patient with repeated administration of serum every twelve hours until the disease was arrested. The average dose at the Samuel Deutsch Convalescent Serum Center is reported to be from 250 to 300 cc., but some patients have received as high as 1,000 cc. of serum.

In 1937 Jackson,¹³ while emphasizing the value of serum, stressed the importance of early administration in adequate quantity. However, he admitted that the observations were open to criticism because of limitations of diagnosis in early cases. Personal opinion and observations seem to influence most of the literature and yet each author almost invariably admits that any good results can be subjected to criticism. Most of the fault appears to be in doubtful diagnosis, inadequate controls and misinterpretation of observations. Another factor that may play an important part is the possible variation in strains in different outbreaks. Often the serum may have been unjustly condemned by those who are certain that serum therapy has no value in the treatment of anterior poliomyelitis; and just as often the serum has possibly been overestimated by the more highly optimistic investigators. Its true value can be determined only by impartial investigators using a system of controls that is above scientific criticism. The same attitude was voiced by Park and by Kramer in 1932.

Rosenholtz¹⁴ studied the effect of human poliomyelitis convalescent serum in the preparalytic stage, being most interested in the mortality, amount of paralysis or muscle weakness during the acute stage, and residual paralysis. In his statistical analysis of several thousand cases, with most attention being paid to those with adequate controls, there appeared to be no evidence of value for the serum. Gershenfeld¹⁵ also reported that a review of available evidence indicated serum to be of little if any value in the treatment of acute poliomyelitis.

Another factor which has caused some doubts concerning the value of serum is the fact that the port of entry of infection is still in dispute. Some investigators have attributed outbreaks to be due to contaminated water, others to milk, others to direct contact. However, it is felt that the consensus places the nasal passages and olfactory nerve endings as the usual path by which the infection invades the nervous system. Kempf and his co-workers¹⁶ found only a small percentage of circulating antibody present in the spinal cord, an observation which suggested to them that antiserum is of little value if the virus spreads by a mode other than the blood serum. They had felt that to be effective antiserum must be able to penetrate into the nervous tissue when the virus is present.

In the hands of some investigators serum therapy appears to be of considerable value while in others it appears to be of no value. In view of the conflicting evidence the Council decided to postpone consideration of human convalescent poliomyelitis serum until further controlled evidence is available.

HUMAN CONVALESCENT MUMPS SERUM

As in the case of poliomyelitis, confusion appears to exist on the value of convalescent mumps serum in the prophylaxis of and in the treatment of mumps. The reasons for the differences in results and opinions are often not readily apparent. One factor may possibly have been the size of the dose, as it has been shown at the Samuel Deutsch Convalescent Serum Center that 10 cc. of serum appeared to afford no protection while 20 cc. (the one recommended by this center) apparently resulted in a lower incidence of disease following exposure.

Among the reports favoring the use of mumps serum are those by de Lavergne,¹⁷ who presented a series of 113 serum-treated cases in which orchitis developed in only five instances as compared to 107 controls, in which orchitis occurred in twenty-five; Teissier,¹⁸ who found orchitis developing in 8.1 per cent of 172 patients treated with serum and in 23.3 per cent of 174 non-serum treated cases; Barenberg,¹⁹ who reported 15 per cent of fifty-five exposed and serum treated children developing the disease as compared to 39 per cent of 125 controls, and Hinckley,²⁰ who found that complications developed in 13 per cent of a serum treated group of twenty-three cases, compared with 40 per cent in non-serum treated fifty-five cases. Other investigators²¹ have reported a decreased incidence in serum treated patients as compared with control patients but the dosage was often so small (from 2 to 5 cc. in some instances), when compared with the recommended higher dosages, that some skepticism has been felt regarding their results because of (a) the possibility of lack of true exposure to an infection and (b) the lack of adequate controls.

Contrary to the authors of the foregoing favorable reports, Toomey²² stated that there was no good reason to immunize passively, with human convalescent serums, individuals exposed to mumps.

Experimentally the virus has been injected into monkeys in an attempt to produce mumps and to determine the extent of experimental immunity produced. However, Johnson and Goodpasture²³ found difficulty in inducing infection except by intraparotid inoculation and attempts to confer passive immunity usually failed. Bloch²⁴ obtained no evidence for the presence of any considerable amount of antiviral substance in either serum or saliva and agreed with Johnson and Goodpasture that a more delicate test is needed for the study of immunity to mumps.

Human convalescent mumps serum appears to be of therapeutic value in the hands of some investigators to induce some degree of passive immunity, while in others the results are less certain. Confirmatory experimental evidence on animals is lacking. In view of the lack of confirmatory evidence, the Council voted to issue the foregoing preliminary report.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

OFFICE OF THE SECRETARY.

CAFFEINE WITH SODIUM BENZOATE (See New and Nonofficial Remedies, 1940, p. 168).

The following dosage form has been accepted:

George A. Breon & Company, Inc., Kansas City, Mo.

Ampuls Caffeine with Sodium Benzoate, 2 cc.: An aqueous solution containing in each 2 cc. caffeine with sodium benzoate-U. S. P., 0.5 Gm. (7½ grains).

17. de Lavergne, V., and Florentin, P.: Convalescents' Serum in Prevention of Orchitis in Mumps, *Bull. Acad. de méd. Paris* 93: 362 (March 31) 1925; abstr. J. A. M. A. 84: 1701 (May 30) 1925.

18. Teissier: Prophylactic Value of Convalescents' Serum in Mumps, *Bull. Acad. de méd. Paris* 93: 369 (April 7) 1925; abstr. J. A. M. A. 84: 1701 (May 30) 1925.

19. Barenberg, L. H., and Ostroff, Jack: Use of Human Blood in Protection against Mumps, *Am. J. Dis. Child.* 42: 1109 (Nov.) 1931.

20. Hinckley, R. G.: The Therapeutic Use of Convalescent Serum in Mumps, *Minnesota Med.* 20: 227 (April) 1937.

21. Hess, A. F.: A Protective Therapy for Mumps, *Am. J. Dis. Child.* 10: 99 (Aug.) 1915. Regan, J. C.: Serum Prophylaxis of Epidemic Parotitis, *J. A. M. A.* 84: 279 (Jan. 24) 1925. Skrotzky, A. L.: Sero-prophylaxis of Epidemic Parotitis, *Odessky M. J.* 4: 8, 1929. Zelig, Mendel: Convalescent Serum in the Prevention of Mumps, *J. Pediat.* 1: 727 (Dec.) 1932.

22. Toomey, J. A.: Passive Prophylaxis against Acute Infections in Childhood, *Ohio State M. J.* 24: 1213 (Nov.) 1938.

23. Johnson, C. D., and Goodpasture, E. W.: Experimental Immunity to the Virus of Mumps in Monkeys, *Am. J. Hyg.* 23: 329 (March) 1936.

24. Bloch, Oscar, Jr.: Attempts to Demonstrate Virus-Neutralizing Substances in Saliva and Serum from Mumps Immunes, *Proc. Soc. Exper. Biol. & Med.* 37: 134 (Oct.) 1937.

13. Jackson, F. W.: The 1936 Epidemic of Poliomyelitis in Manitoba: Control Measures, *Canad. Pub. Health J.* 28: 363 (Aug.) 1937.

14. Rosenholtz, B. I.: Convalescent Serum Treatment in the Preparalytic Stage of Poliomyelitis, *Minnesota Med.* 21: 115 (Feb.) 1938.

15. Gershenfeld, Louis: Biological Products, New York, Romaine Pierson Publishers, Inc., 1939.

16. Kempf, J. E.; Nungesser, W. J., and Soule, M. H.: Penetration of Antiserum Into the Central Nervous System of Monkeys Infected with Poliomyelitis, *Proc. Soc. Exper. Biol. & Med.* 40: 395 (March) 1939.

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SATURDAY, MARCH 8, 1941

MORTALITY OF HUSBANDS AND WIVES

From modern studies, especially those of Pearson in England, it has been known that there is a certain positive correlation in the length of life of husbands and wives. For single causes of death it has been proved for tuberculosis by several investigators that there occurs a definite association between husband and wife in incidence and mortality from this disease. Now Antonio Ciocco¹ has reached some new results by applying modern statistical methods to death records of marital groups.

Ciocco obtained the material for his study from the death records of white persons filed in the Washington County (Md.) Health Department during the period 1898 to 1938. The records of married men have been matched with those of widows and vice versa. Thus the records of 2,578 couples have been collected, or 45 per cent of what it could theoretically have been possible to discover. Among the 2,578 couples, the husband and wife of 7 died simultaneously or within twenty-four hours from homicide, suicide, accidents or similar causes. These have been excluded from the further study, and the material is constituted by the death records of 2,571 white couples.

The material originates from official vital statistics of all the dead white persons of the community, and intentional selection has not been made relative to the two main variables dealt with in the investigation, viz. age at death and cause of death. The careful analysis of the material reveals first that there is a high positive correlation in the length of life of the spouses. There is evident a strong tendency for marital partners to have the same duration of life.

The author next arranged the observed number of husbands and wives in a contingency type of table according to the stated specific causes of death of each couple and calculated the number of deaths expected, assuming random matings in relation to cause of death.

1. Ciocco, Antonio: On the Mortality in Husbands and Wives, Human Biology 12: 508 (Dec.) 1940.

These data reveal that when a husband or wife died of tuberculosis the relative number of their spouses who also died from this cause is three times as high as that of the spouses of other persons. Influenza and pneumonia as a cause of death occur almost twice as often in the group of marital partners who have died from this cause as among the spouses of those who have not. This ratio was 1.5 in the case of cancer and 1.2 in the case of heart diseases.

The author also set up a control sample which is of an entirely different nature from the calculated expected deaths. For each husband whose death preceded that of his wife, another widow was sought in the files of unmatched widows having as characteristics the age at death within ± 5 years that of the wife and the time of death within ± 5 years of that of the wife. In the same manner a control widower was selected for each wife whose death preceded that of the husband. The results obtained in these control, nonmarital, couples for tuberculosis, influenza and pneumonia, cancer and heart diseases are shown in the tabulated summary and compared with the marital

Number of Couples in Which the Man and the Woman Died from the Same Cause

Cause of Death	A	B	C
	Observed Number of Husbands and Wives	Expected Number of Husbands and Wives	Control (Non-marital) Couples
Tuberculosis (all forms).....	20	7.4	9
Influenza and pneumonia (all forms)	27	15.5	19
Cancer and other malignant tumors	29	19.9	19
Heart diseases	184	162.6	166

couples both of whom have died from one of these causes and with the number expected assuming random mating.

This impressive table reveals an almost perfect agreement between the control group (C) and the calculated data (B). Within the limits of that comparison the calculated numbers actually represent the expectations, assuming random matings.

The results of Ciocco's investigations demonstrate not only the existence of a high correlation in the length of life of husbands and wives but also a distinct tendency for marital partners to die from the same cause when one of the mates dies from tuberculosis, influenza and pneumonia, cancer or heart disease. For a chronic infectious disease such as tuberculosis, this kind of association is easily explainable and has also been found by former investigators. It is somewhat more difficult to explain for an acute infectious disease like influenza and pneumonia, considering that the deaths of husband and wife were not simultaneous. In heart diseases, which are of course not a clinical entity, the association could be due to another chronic infection, rheumatic heart disease. However, such a direct transmission, according to our present knowledge, can hardly explain the marital association noted for cancer.

NECROBIOSIS LIPOIDICA DIABETICORUM

An apparently new dermatosis, necrobiosis lipoidica diabeticorum, was first described in 1929 by Oppenheim.¹ A diabetic patient had cutaneous lesions—flat, red papules with a yellowish center—distributed over the legs. Biopsy revealed necrobiotic areas in the corium in which the elastic fibers were absent and the collagen fibers swollen. Oppenheim named the disorder “dermatitis atrophicans lipoides diabetica.” A similar lesion was observed by Urbach² in 1932 in a woman who had diabetes. The lesions, chiefly below the knees, consisted of hard flat papules, bluish violet at the border and yellow in the center. Microscopic examination revealed changes in the vessels of the corium with local necrotic areas in which fatty substances were deposited. Urbach considered the condition to be a local tissue necrobiosis caused by toxins due to diabetes mellitus and followed by infiltration with lipoids present in excess in the circulating blood of patients with diabetes. He accordingly named the lesion “necrobiosis lipoidica diabeticorum.” Balbi reported a case in 1933, and Zeisler and Caro³ reported the first two cases in the United States in 1934.

Now Hildebrand and her associates⁴ have reported 8 cases observed at the Mayo Clinic and 76 instances collected from medical periodicals. Among 2,000 cases of diabetes admitted to the Mayo Clinic from 1936 to 1940, only 8 instances of this dermatosis occurred. Diabetes was present in more than 87.2 per cent of the reported cases. In 55.6 per cent diabetes was diagnosed from one to ten years prior to the appearance of the cutaneous lesions, while in 17 per cent the lesions appeared prior to the diagnosis of diabetes. In 70 per cent the diabetes was moderately severe or severe. All cases have been treated with insulin during the greater part of their course, although in the majority of the cases the course of the disease has been poorly controlled. Some have thought that insulin may have a role in the development of these lesions. Thus Michelson reported a case in which lesions developed at the sites of injection of insulin. However, as Hildebrand points out, in 8 cases the lesions developed before diabetes and in 8 cases there was no diabetes. Of the 78 cases reported in the literature 47 occurred in women and of the 8 cases of the Mayo Clinic 7 were in women. The condition was seen predominantly in younger diabetic patients, those between the ages of 10 and 40.

The common site of occurrence is one or both legs below the knee. The individual lesion is a small round or oval reddish papule, which enlarges gradually and becomes a plaque with a red or violet border and yellowish center.

The microscopic changes are pathognomonic and consist primarily, according to Zeisler and Caro, of a vascularitis with perivascular lymphocytic infiltration and extensive necrobiotic areas in the corium containing swollen collagen fibers which are infiltrated by droplets of lipoids. These lipoids stain reddish brown with sudan III and do not show double refraction with the polariscope. Most authors believe that these lipoids are composed of phospholipids and free cholesterol. Two hypotheses have been advanced to explain the pathogenesis of this condition. One attempts to explain it on the basis of damage to the small blood vessels of the corium by circulating toxins with subsequent thrombosis, necrosis and secondary imbibition of fat particles. The other hypothesis attributes the cutaneous lesions to changes in the general metabolism of fat. However, Hildebrand and her co-workers indicate that in their series the average value for cholesterol was found to differ but little from the average mean normal value and that the blood lipoids in the 8 cases gave values practically identical with average mean normal values. Thus the pathogenesis of this condition is still obscure.

The diagnosis of the lesion, especially in a subject with diabetes mellitus, presents little difficulty. It is differentiated from xanthoma, which it resembles, by the absence of true foam cells, and from amyloidosis, scleroderma and similar dermatoses by the characteristic gross and microscopic appearances. The lesion is chronic and is resistant to treatment with insulin and low fat diet and to roentgen or ultraviolet irradiation.

SUDDEN DEATH

For medicolegal and clinical purposes, sudden death may be defined as the termination of life which comes quickly under circumstances when its immediate arrival is unexpected. Sudden death may be further differentiated, as suggested by Moritz,¹ into (1) instantaneous death, (2) unexpected syncope with deepening unconsciousness terminating in death, and (3) rapidly fatal illness with early prostration not initiated by loss of consciousness. The causes of sudden death are varied. In most instances vascular accidents are responsible, the term “vascular” being employed to include the heart as a modified blood vessel. These accidents in order of their frequency are (1) sudden stopping of the heart, (2) hemorrhage, (3) arterial embolism and thrombosis. Hemorrhage may prove instantaneously or rapidly fatal because of (1) loss of blood, (2) the effects of pressure on a vital organ, as in bleeding into the pericardium, (3) the damage to tissue from bleeding into its substance, as in the case of hemorrhage into the brain or into both adrenal glands. Emboli come as a rule from thrombi in the systemic veins or thrombi in the cham-

1. Oppenheim, Moritz: Arch. f. Dermat. u. Syph. 166: 576 (Oct.) 1932.

2. Urbach, Erich: Arch. f. Dermat. u. Syph. 166: 273 (Sept.) 1932.

3. Zeisler, E. P., and Caro, M. R.: Necrobiosis Lipoidica Diabeticorum, Arch. Dermat. & Syph. 30: 761 (Dec.) 1934.

4. Hildebrand, Alice G.; Montgomery, Hamilton, and Rynearson, E. H.: Necrobiosis Lipoidica Diabeticorum, Arch. Int. Med. 66: 851 (Oct.) 1940.

1. Moritz, A. R.: Sudden Death, New England J. Med. 222: 778 (Nov. 14) 1940.

bers of the heart. Sudden death follows the occlusion of the trunk or of both branches of the pulmonary artery and sometimes also when only one main branch is occluded.

Statistical studies by Hamman² reveal that 91 per cent of sudden deaths from natural causes are due to disease of the cardiovascular system and that 65 per cent of all cases are due to sudden heart failure, 21 per cent to hemorrhage, and 5 per cent to arterial embolism and thrombosis. Of the deaths from sudden heart failure, 65 per cent are due to disease of the coronary arteries; 21 per cent occur with valvular heart disease, 10 per cent with myocardial disease and 3 per cent with cardiac hypertrophy. Syphilis of the aorta is a frequent cause of sudden death. It occurred in his statistics in about 20 per cent of all cases due to natural causes. Thus it appears that heart failure is the cause of sudden death nearly three times as often as hemorrhage and embolism combined. Death from sudden stopping of the heart is more often instantaneous than death from hemorrhage or cerebral embolism. If an adult in perfect health suddenly falls dead, the chances are overwhelmingly in favor of coronary occlusion. Coronary arteriosclerosis with or without thrombosis is the commonest cause of sudden death. Other diseases of the heart responsible are syphilitic aortitis, especially when the aortic valve or the coronary ostiums are involved, congenital anomalies and hypertensive, degenerative or inflammatory lesions. These may lower the threshold to such a degree as to predispose the heart to sudden stoppage.

In the majority of cases of instantaneous death, according to Weiss,³ postmortem examinations fail to reveal the cause. Weiss is much impressed by the close similarity and interrelation between the mechanism of instantaneous death and that of syncope. Frequently instantaneous death is merely fatal syncope. In cardiac syncope increased sensitivity of the myocardium and nerve structures within the heart, caused by ischemia and infection, plays an important part. In the presence of ischemic myocardium and hyperactive reflexes, fright or other emotional stress may induce cardiac arrhythmia, syncope and death.

In the absence of a structural defect, instantaneous death may be considered logically as due to inhibition of cardiac action on a physiologic basis. Two physiologic mechanisms within the heart have so far been established as capable of accounting for a sudden cessation of the circulation leading either to temporary syncope or to death. One is the temporary cardiac or ventricular standstill observed in the syncope of Adams-Stokes syndrome. The other mechanism is ventricular fibrillation. This is an irreversible phenomenon which termi-

nates in death. Hoffa and Ludwig demonstrated in 1850 that electrical stimulation of the mammalian heart leads to ventricular fibrillation and death. McWilliam in 1888 advanced the theory that sudden death in man could be due to ventricular fibrillation. Hering observed that ventricular fibrillation in animals is an irreversible process invariably terminating in death. Ventricular fibrillation may be induced experimentally in animals by electrical, mechanical or chemical stimulation and by ligation of the coronary artery. The latter phenomenon suggests that the mechanism of death in coronary artery disease is by ventricular fibrillation. Contrary to Allbutt's belief that death in angina pectoris is due to overstimulation of the vagus resulting in a standstill of the entire heart, the preponderance of evidence indicates that fatal cardiac syncope is usually due to ventricular fibrillation.

The exact nature of ventricular fibrillation is not clear. Recent physiologic studies have demonstrated that sympathetic nerve stimulation acts through the chemical mediation of an epinephrine-like substance. Apparently epinephrine is capable of initiating a new focus of rhythmicity. Observations on experimentally induced ventricular fibrillation in animals indicate that epinephrine is an important exciting agent in the development of fibrillation in a ventricular myocardium sensitized by various methods such as poisoning with chloroform, barium chloride and benzene, reduction of the blood supply or application of electrical stimuli. Nathanson⁴ suggested that the tendency to ventricular fibrillation may be lessened by the application of drugs which counteract the effect of epinephrine on the ventricles. He induced cardiac standstill in susceptible human beings by reflex vagus stimulation and by sympathetic stimulation with epinephrine administered intravenously. The prefibrillation rhythm induced by intravenous injections of epinephrine was controlled by the oral administration of quinidine or of acetyl-beta-methylcholine chloride. Borg⁵ attempted to modify the incidence of sudden death in his hospital service by administering quinidine sulfate to patients liable to sudden death. A comparison of the incidence of sudden death of patients admitted in the course of three years shows that in 1934 and 1935 the number amounted to twenty-three each year, whereas during the year 1936, when the drug was given, there was not one death among patients with congestive heart failure who had received the drug. The desirability of the continued use of quinidine in an attempt to prevent sudden death is still open to discussion. True, known well controlled studies do not point to danger, and Borg's study does not indicate that this exists. However, more evidence should be available before a definite opinion is reached.

2. Hamman, Louis: Sudden Death, *Bull. Johns Hopkins Hosp.* 55: 387 (Dec.) 1934.

3. Weiss, Soma: Instantaneous "Physiologic" Death, *New England J. Med.* 223: 793 (Nov. 14) 1940.

4. Nathanson, M. H.: Pathology and Pharmacology of Cardiac Syncope and Sudden Death, *Arch. Int. Med.* 58: 685 (Oct.) 1936.

5. Borg, J. F.: Observations on the Occurrence and Prevention of Sudden Death, *Minnesota Med.* 23: 783 (Nov.) 1940.

Current Comment

BRINKLEY ON THE BRINK? IV

THE JOURNAL on February 8 called attention to a news release which stated that Dr. John R. Brinkley had been adjudged bankrupt. *Broadcasting* for February 10 refers to this incident as follows:

Almost coincident with the disclosure that the Mexican Government will not re-license Dr. John R. Brinkley's 180,000-watt XERA, at Villa Acuna, Mexico, came the action Jan. 31 of the Federal District Court at San Antonio, adjudging the medico-broadcaster a bankrupt. . . . Following the conclusion of the North American Engineering Conference in Washington, Jan. 30, to perfect the continental allocations under the Havana Treaty, it was learned authoritatively that no provision had been made for the continuation of XERA when the treaty becomes effective March 29.

ACUTE SUBDELTOID BURSTITIS

A clinical picture characterized by sudden onset of agonizing pain and stiffness in the shoulder was described as early as 1872 by Duplay under the name of periarthritis humeroscapularis. He had correctly recognized the subdeltoid bursa as the seat of the lesion. Codman in 1904 called attention to the role of the tendons of the short rotators in the production of many lesions giving rise to painful shoulder. He stressed in particular the importance of rupture of the tendon of the supraspinatus muscle in the production of subdeltoid bursitis. With the advent of x-rays, calcified deposits were demonstrated in the substance of the tendons of the short rotators. As the result of observations in cadavers (Meyer) and in operations, the following concept has been evolved: Repeated minor traumas produce minute tears in the substance of the tendons. These tears, because of poor circulation in a tendon, result in areas of local necrosis with formation of calcium deposits. At some time an area of calcification, usually in the tendon of the supraspinatus muscle, becomes the seat of an acute inflammatory process which produces tension in the unyielding fibers of the tendon. The acute inflammation extends to the overlying bursa. The resulting clinical picture is characterized by acute agonizing pain in the shoulder and exquisite tenderness over the great tuberosity and the insertion of the deltoid muscle. Any attempt at abduction increases the pain. X-ray examination usually discloses a relatively large calcified deposit. The acute stage subsides in one or two weeks with disappearance of the muscle spasm and pain and gradual return of motion. In cases in which complete recovery occurs, Codman believes, the soft calcified deposit has spontaneously ruptured into the bursa, whence it has been absorbed. Thus it appears that relief from pain and return to normal shoulder function depend on the relief of tension in the calcified area. This was readily accomplished by exploration of the bursa and incision of the calcified deposit in the supraspinatus tendon. The operation may be performed under general, local or brachial plexus block anesthesia. Haggart and Allen¹ obtained good results by injection

of about 20 cc. of a 2 per cent procaine hydrochloride solution into the bursa and into the capsule of the shoulder joint. They believed that the relief of symptoms following this procedure was due to a more rapid removal of the calcified deposit due to improvement in the local circulation. They add, however, that injection of the tendon provides for rupture of some of the calcified material into the bursa, a point which Codman stressed as probably the means by which nature gives relief. Patterson and Darrach² obtained apparently as good results in the treatment of sixty-three patients with acute subdeltoid bursitis by introducing two needles into the bursa and forcing saline solution through one needle to flow out the other. They were able in that way to wash out the calcified deposits. Alanson Weeks³ in 1908 aspirated a subdeltoid bursa of a patient with acutely painful shoulder for diagnostic purposes. Although he had aspirated only about 1 cc. of straw-colored fluid, the patient experienced instantaneous relief from pain. Weeks has been able to obtain relief for forty patients by the simple procedure of multiple needling of the bursa whether he was able to withdraw fluid or not. He believes that the relief of symptoms is due to relief of tension effected by puncturing the firm walled sac in numerous places. The method is simple and may be performed under local or gas inhalation anesthesia. According to Weeks, chronic conditions as well will be relieved and the calcium absorbed after the use of this method, unless the salt has organized into bony hardness, in which case surgical removal is justified.

THE CAMPAIGN AGAINST RHEUMATISM IN BRITAIN

The Fourth Annual Report of the Empire Rheumatism Council⁴ covers the period of November 1939 to November 1940. In spite of the extraordinary difficulties encountered, including the bombing of one of the laboratories, substantial progress is reported in plans for a national scheme of treatment. Research in the various institutions sponsored by the council has continued with comparatively few interruptions. Likewise, the treatment centers operating under the auspices of the council have continued to function with only slight disturbances. The council itself and members of its staff have cooperated in numerous ways with work for the defense forces, which, as pointed out in the report, now comprise the whole community, excluding only the totally infirm and the children. Among other difficulties, this has involved an administrative problem in that the physical treatments which are necessary in the treatment of rheumatic diseases are also frequently called for in the rehabilitation of joints, muscles and nerves injured by wounds. The report not only reflects the difficulties encountered with medical research and treatment during wartime but also illustrates the degree to which these difficulties can be overcome.

2. Patterson, R. L., Jr., and Darrach, William: Treatment of Acute Bursitis by Needle Irrigation, *J. Bone & Joint Surg.* **10**: 993 (Oct.) 1937.

3. Weeks, Alanson, and Delprat, G. D.: Subdeltoid Bursitis (Acute), *Internat. Clin.* **3**: 40 (Sept.) 1936. Weeks, Alanson: Subdeltoid Bursitis, *Arch. Surg.* **41**: 554 (Aug.) 1940.

4. Lord Horder: Fourth Annual Report of the Empire Rheumatism Council.

1. Haggart, G. E., and Allen, H. A.: Painful Shoulder: Diagnosis and Treatment with Particular Reference to Subacromial Bursitis, *S. Clin. North America* **15**: 1537 (Dec.) 1935.

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

THE FLYING CADET CANDIDATE AND THE FAMILY PHYSICIAN

M. MARTYN KAFKA, M.D.

Flight Surgeon, U. S. Army

Scott Field, Illinois

The U. S. Army Air Corps has embarked on a program to increase greatly the number of available aviators. Each corps area has a flying cadet board which passes on the qualifications of the applicant flying cadets. The family physician can in large measure assist in the Air Corps preparedness program by a proper approach and attention to the physical problems of these applicants for the Army Air Corps. Many of the young applicants travel hundreds of miles to army flight surgeons for the required special physical examination. Important problems arise in the course of a pilot's career. High altitude flying, sudden changes in altitude and temperature, all require perfectly healthy young men.

The family physician must realize that when pilots and their crews are flying in extremely high altitudes their safety depends on the maintenance of normal respiratory, cardiovascular and mental processes. Therefore any physical defect which the applicant has may be the cause of his rejection by the flying cadet board.

The family physician can aid the flight surgeon and the flying cadet board by properly preparing the applicant prior to his contemplated trip to take the special physical examination. The family practitioner may overlook the minor defects of a seemingly healthy youth who asks to be examined. Naturally the apparently healthy candidate feels that he is qualified for any type of physical examination, and should he fail he may become discouraged; besides, it has cost him time and money to travel to the examining board, and when a flying cadet candidate is disqualified because of some minor defect the progress of the preparedness program is hampered to some extent.

The family doctor, then, should bear in mind some of the deficiencies which are common disqualifying factors. A general survey is here offered which attempts to outline some of the physical requirements essential to the acceptance of a flying cadet candidate. These applicant cadets are only too often rejected because of minor conditions which originally could have been corrected before they left home.

The minimum vision is 20/20 for a class A pilot. A mild conjunctivitis, hordeolum or scar on the external eyeball not affecting the cornea is not considered disqualifying. Severe myopia, hyperopia or advanced astigmatism are disqualifying. Any decided weakness of the extraocular muscles or phorias are also disqualifying. Failure of the pupils to react to light and in accommodation, or unequal pupils, finding of total color-blindness to the yarn test for a single color such as red, green or blue or the presence of night blindness will be sufficient cause to reject the candidate.

Obstructions of the nose or deformity of the septum which occludes nasal breathing should be corrected before the candidate appears for his examination. Any nasal polyps, sinus infections, chronic hypertrophied infected tonsils, obstruction of the eustachian tubes or any infection of the mouth, gums or teeth should be treated and cured. Acute rhinitis and bronchitis should be treated. No applicant should be allowed to appear before the Flying Cadet Examining Board with a cold, nor should one be permitted to travel a long distance for a physical examination immediately after convalescing from a short or long illness.

I would suggest that, when doubt exists in the family doctor's mind on problems about the eye, ear, nose and throat, a local specialist be consulted and that, if minor defects are found, correction be encouraged. Missing teeth should be replaced. The applicant's hearing should be at least 20/20 tested by the whispered voice. Any benign tumors of the neck, such as cysts or lipomas, should be surgically removed. Irritations of the neck and infections of the skin should be cured. Acne vulgaris should be improved.

Any deformities of the chest such as pigeon chest, rachitic chest or deep funnel chest are considered disqualifying. Lordosis or scoliosis with shoulder deformities are unfavorable. Shortening of the limbs is disqualifying. Extensive psoriasis which is not amenable to treatment is likewise a rejectable factor.

Organic lesions of the heart or any pulmonary diseases of either early or late stages are disqualifying. A pulse rate of 90 beats per minute may be considered normal if the applicant is excitable.

Blood pressure should be checked to see if it is within normal range; about 135 to 140 systolic is a borderline type.

Ringworm on any region of the body as well as any other diffuse cutaneous disease should be cured. Applicants with deformities of the feet are rejectable except for various degrees of flatfoot.

Undernourishment and excessive obesity should be corrected to the ideal type of weight. A fairly good and simple guide for weight calculation is for every applicant who measures 5 feet (152 cm.) to allow 104 pounds (47 Kg.) and for every inch thereafter to add an additional 5 pounds (2.3 Kg.). If for example a candidate aged 22 weighs 170 pounds (77 Kg.) and is 5 feet 6 inches (167.6 cm.) tall, he would be accepted by the Air Corps if he were of an average of 134 pounds (61 Kg.), with a minimum weight of 124 pounds (56 Kg.) and a maximum of 151 pounds (68.5 Kg.). This is calculated by deducting 10 pounds (4.5 Kg.) from average ideal weight or adding from 22 to 30 pounds (10 to 13.6 Kg.) to the ideal average for the maximum weight. Thus any applicant who is overweight or underweight could be treated for correction. The minimum height is 5 feet 4 inches (162.5 cm.) and the maximum height accepted is 6 feet 4 inches (193 cm.). The maximum weight accepted is 200 pounds (91 Kg.).

Those candidates who are under active treatment for gonorrhea should be discouraged from appearing for an examination. Candidates who have had gonorrhea but who have been cured may be considered favorably. Candidates with congenital or acquired syphilis are rejected.

Secondary anemias should be corrected. Any history of nephritis or finding of any persistent degree of albumin, dextrose or casts in the urine is disqualifying.

ARMY RESERVE OFFICERS ORDERED TO ACTIVE DUTY SECOND CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Second Corps Area, which comprises the states of New York, New Jersey and Delaware:

BENNETT, William L., 1st Lieut., East Northport, L. I., N. Y., Madison Barracks, N. Y.
BREENBERG, Solomon, Captain, Bayonne, N. J., Fort McClellan, Ala.
BUMP, Samuel C., 1st Lieut., Ridgewood, N. J., Camp Shelby, Miss.
CHARET, Richard, 1st Lieut., Brooklyn, Fort McClellan, Ala.
COLTON, Benjamin, 1st Lieut., Flushing, L. I., N. Y., Carlisle Barracks, Pa.
COOPER, Nathaniel, Captain, Merrick, L. I., N. Y., Carlisle Barracks, Pa.
DEFUSCO, Gaetano, 1st Lieut., Jersey City, N. J., Camp Livingston, La.
D'ELIA, William J., 1st Lieut., Jersey City, N. J., Camp Shelby, Miss.
DE LUCA, Donato, 1st Lieut., Montclair, N. J., Fort Benning, Ga.
EHRlich, Hilbert W., 1st Lieut., New York, Fort McClellan, Ala.
EINHORN, Samuel E., 1st Lieut., Newark, N. J., Camp Livingston, La.
EISENBERG, Nathan P., 1st Lieut., New York, Camp Shelby, Miss.
FENCHEL, Benjamin, 1st Lieut., Newark, N. J., Camp Shelby, Miss.
GERSH, William J., 1st Lieut., Mount Vernon, N. Y., Carlisle Barracks, Pa.
GIANATASIO, Pasquale F., 1st Lieut., New York, Camp Livingston, La.
GOLAN, Myer E., 1st Lieut., New York, Carlisle Barracks, Pa.
GRAVES, Clifford L., 1st Lieut., New York, Carlisle Barracks, Pa.
HAVERTY, Edwin A., 1st Lieut., New York, Trenton, N. J.
HOROWITZ, Max N., 1st Lieut., New York, Fort Hancock, N. J.
KAUFMAN, Philip M., 1st Lieut., Brooklyn, Fort McClellan, Ala.
KNAPP, George M., 1st Lieut., Larchmont, N. Y., Carlisle Barracks, Pa.

THIRD CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Third Corps Area, which comprises the states of Pennsylvania, Virginia, District of Columbia and Maryland:

ABRAMS, Frank, 1st Lieut., Pittsburgh, Fort Belvoir, Va.
ADONIZIO, Anthony Charles, 1st Lieut., Pittston, Pa., Philadelphia QM Depot, Philadelphia.
ALEXANDER, Arthur Sidney, 1st Lieut., Washington, Pa., Fort Belvoir, Va.
ALEXANDER, Charles Palmer, 1st Lieut., Richmond, Va., Langley Field, Va.
ATKINSON, Walter, Captain, Washington, D. C., Fort George G. Meade, Md.
BAILEY, Charles Philamore, 1st Lieut., Upper Darby, Pa., Indiantown Gap, Pa.
BARDONER, John Nicholas, 1st Lieut., McKees Rocks, Pa., Savannah Air Base, Ga.
BARNETT, Luke Joseph, 1st Lieut., Pittsburgh, Savannah Air Base, Ga.
BAUSCHER, Abner Henry, Lieut. Col., Reading, Pa., Indiantown Gap, Pa.
BENZ, Carl Ferdinand, 1st Lieut., Linesville, Pa., Camp Shelby, Miss.
BISHOP, Charles Justus, Captain, Hop Bottom, Pa., Camp Lee, Va.
BLUMBERG, Joe Morris, 1st Lieut., Baltimore, Fort Eustis, Va.
BRALL, Cleo Augustus, 1st Lieut., Washington, D. C., Fort George G. Meade, Md.
BRANT, Glen Zimmerman, 1st Lieut., Berlin, Pa., Camp Lee, Va.
BREHM, William Frederick, Jr., Captain, Franklin, Pa., Indiantown Gap, Pa.
BRESLER, Rubin Ralph, 1st Lieut., Emporium, Pa., Fort Belvoir, Va.
BRONK, Henry Nehemiah, Captain, Jeannette, Pa., Camp Lee, Va.
BROWDIE, Abraham Saul, 1st Lieut., Pittsburgh, Camp Lee, Va.
BRUNACCI, Alfred, Captain, West Pittston, Pa., Camp Pendleton, Va.
BRYCE, Clifford Barton, 1st Lieut., McKeesport, Pa., Savannah Air Base, Ga.
BRYNE, Kenneth Nathan, 1st Lieut., Lexington, Va., Fort Eustis, Va.
CANADA, Charles Crawford, 1st Lieut., East Falls Church, Va., Fort Story, Va.
CLOUD, Milton Harlan, 1st Lieut., Uniontown, Pa., Fort Eustis, Va.
COHEN, Reuben Robert, Captain, Pittsburgh, Savannah Air Base, Ga.

Roentgen ray and laboratory tests are utilized by examining board flight surgeons as a routine.

Since the examination of the flying cadet candidate entails a highly technical procedure, the absence of the deficiencies mentioned would considerably help the examining flight surgeon in the output of acceptable flying cadet material. Aviation medicine today is an attempt to keep pilots well while they are in the air as well as on land.

LESLIE, Morris J., 1st Lieut., Brooklyn, Camp Livingston, La.
LIPSCHITZ, Samuel, Captain, New York, Camp Livingston, La.
LITTAUER, David I., 1st Lieut., New York, Carlisle Barracks, Pa.
MANETTE, Milton, 1st Lieut., North Bergen, N. J., Fort McClellan, Ala.
MEINHARD, Fred, 1st Lieut., Newark, N. J., Fort Knox, Ky.
MILLER, George M., 1st Lieut., Carteret, N. J., Camp Shelby, Miss.
NACHTIGALL, Henry B., 1st Lieut., New York, Fort McClellan, Ala.
NIEMAN, Solomon Z., 1st Lieut., New Brunswick, N. J., Fort McClellan, Ala.
POLLOCK, Sol, Captain, Bayonne, N. J., Camp Livingston, La.
RAUSCHENBACH, Paul E., 1st Lieut., Paterson, N. J., Camp Shelby, Miss.
REDDICK, Robert H., 1st Lieut., Helmuth, N. Y., Fort Niagara, N. Y.
RIFFIN, Irving M., 1st Lieut., Upper Montclair, N. J., Camp Shelby, Miss.
ROBBINS, Barnard, 1st Lieut., New York, Fort Dix, N. J.
SABERSKI, Eugene, 1st Lieut., Tarrytown, N. Y., Fort McClellan, Ala.
SAUNDERS, Alexander J., 1st Lieut., New York, Fort Dix, N. J.
SCHWARTZ, Harold B., 1st Lieut., Union City, N. J., Camp Livingston, La.
SHIPMAN, Meyer P., 1st Lieut., Paterson, N. J., Camp Livingston, La.
SIMON, Kona, 1st Lieut., New York, Fort McClellan, Ala.
SMITH, Charles A., Lieut. Col., New Rochelle, N. Y., Carlisle Barracks, Pa.
SMITH, Edward C., 1st Lieut., Lakewood, N. J., Camp Livingston, La.
SMITH, Harry G., 1st Lieut., New York, Carlisle Barracks, Pa.
SOLOMON, Leonard B., 1st Lieut., New York, Carlisle Barracks, Pa.
WARNER, Allan H., 1st Lieut., Woodside, L. I., N. Y., Fort Dix, N. J.
YONGUE, Charles S., 1st Lieut., Flushing, N. Y., Camp Shelby, Miss.
YOSKALKA, Jack S., 1st Lieut., Newark, N. J., Camp Livingston, La.
ZAUDERER, Seymour J., 1st Lieut., New York, Camp Livingston, La.
ZIMMERMAN, Louis, 1st Lieut., Brooklyn, Camp Livingston, La.

CONVERSE, James Montour, 1st Lieut., Montoursville, Pa., Fort Eustis, Va.
COX, Joseph Edwin, Captain, Waynesboro, Va., Fort Story, Va.
DOSS, Julian Booth, 1st Lieut., Penhook, Va., Camp Lee, Va.
EDWARDS, William Charles, 1st Lieut., Pittsburgh, Fort Story, Va.
EHRLER, August Herman, Captain, North East, Pa., Fort Belvoir, Va.
FOCHT, William Weinholt, 1st Lieut., Lebanon, Pa., Indiantown Gap, Pa.
GRADY, James William, 1st Lieut., Johnstown, Pa., Indiantown Gap, Pa.
GREENWALD, Eugene, Captain, Friendsville, Md., Fort Belvoir, Va.
HALL, Collins Fremont, 1st Lieut., Williamsport, Pa., Camp Lee, Va.
HAMPTON, Louis Jennings, 1st Lieut., Stroudsburg, Pa., Camp Lee, Va.
HEGARTY, Francis Arnd, Captain, Pittsburgh, Fort George G. Meade, Md.
IREY, Nelson Sumner, 1st Lieut., Woodville, Pa., Indiantown Gap, Pa.
JONAS, Stephen Alphonse, 1st Lieut., Nanticoke, Pa., Fort Belvoir, Va.
KOENIG, Frederick William R., 1st Lieut., Pittsburgh, Fort George G. Meade, Md.
LAFSKY, Benjamin Paul, 1st Lieut., Washington, D. C., Camp Lee, Va.
MAGRUDER, Roger Gregory, Captain, Charlottesville, Va., Langley Field, Va.
MALLORY, Brooke Baylor, 1st Lieut., Lexington, Va., Fort Belvoir, Va.
MANSON, Richard Campbell, 1st Lieut., Richmond, Va., Camp Lee, Va.
MARTIN, Lee Baldwin, 1st Lieut., Burgettstown, Pa., Fort Belvoir, Va.
MASTERS, Raymond Eakin, 1st Lieut., East McKeesport, Pa., Fort Belvoir, Va.
McMILLAN, Donald Lamont, 1st Lieut., Glenshaw, Pa., Fort Eustis, Va.
MICHELSON, Elliott, 1st Lieut., Baltimore, Indiantown Gap, Pa.
MIEHELIC, Fabian Matthew, 1st Lieut., Pittsburgh, Camp Lee, Va.
MILES, Collum Anthony, 1st Lieut., Clairton, Pa., Camp Lee, Va.
MILLER, Edgar Allen, Major, Gettysburg, Pa., Indiantown Gap, Pa.
MILNER, Marlyn Walter, 1st Lieut., Altoona, Pa., Fort George G. Meade, Md.
MORGAN, David Reynolds, Major, Philadelphia, Fort Belvoir, Va.
MORRIS, John Edward, Jr., 1st Lieut., Washington, D. C., Fort Belvoir, Va.
O'NEAL, James Talton, 1st Lieut., Amelia, Va., Fort Story, Va.
PATTERSON, George William, 1st Lieut., North Braddock, Pa., Camp Lee, Va.
PROCTOR, Samuel Edward, 1st Lieut., Baltimore, Fort Belvoir, Va.
RUBEN, Joseph Eugene, 1st Lieut., Pittsburgh, Fort Story, Va.
RUEHL, William Woodrow, 1st Lieut., Pittsburgh, Indiantown Gap, Pa.

SABLE, Daniel Edwin, Lieut. Col., Pittsburgh, New Cumberland General Depot, New Cumberland, Pa.
 SHAFFER, Robert Lee, Major, Brookville, Pa., Fort Belvoir, Va.
 SHAROVE, Nathan, Captain, Richmond, Va., Camp Lee, Va.
 SHEPLER, Joseph Robert, 1st Lieut., West Newton, Pa., Camp Lee, Va.
 SHERMAN, Victor, 1st Lieut., Philadelphia, Fort Story, Va.
 SHIBLER, Samuel William, 1st Lieut., Carnegie, Pa., Fort George G. Meade, Md.
 STAMAN, Harry, 1st Lieut., Uniontown, Pa., Fort Eustis, Va.
 STEWART, George Adolph, Lieut. Col., Baltimore, Fort Belvoir, Va.
 SUTTON, Robert Lexington, 1st Lieut., Bellevue, Pa., Fort Eustis, Va.

SWARTWOUT, John Alden, 1st Lieut., Washington, D. C., Fort Belvoir, Va.
 TAKSA, David Samuel, 1st Lieut., Elizabeth, Pa., Air Base, Talahassee, Fla.
 THOMPSON, Frank Vincent, 1st Lieut., Nazareth, Pa., Langley Field, Va.
 TUERK, Isadore, 1st Lieut., Baltimore, Fort George G. Meade, Md.
 WADDILL, James Franklin, Captain, Norfolk, Va., Fort Eustis, Va.
 WHEELER, Albert McElroy, 1st Lieut., Washington, D. C., Fort Eustis, Va.
 WILT, Harold Levi, 1st Lieut., Brownsville, Pa., Fort Belvoir, Va.

FOURTH CORPS AREA

The following additional medical reserve officers have been ordered to active duty by the Commanding General, Fourth Corps Area, which comprises the states of Tennessee, North Carolina, South Carolina, Alabama, Georgia, Mississippi, Florida and Louisiana:

AKERS, Noel M., 1st Lieut., McIntyre, Ga., Fort Bragg, N. C.
 ALVERSON, Reginald C., 1st Lieut., Greer, S. C., Fort Bragg, N. C.
 ANDERSON, Charles W., 1st Lieut., Clinton, S. C., Camp Polk, La.
 ASSEY, Philip E., 1st Lieut., Georgetown, S. C., Fort Bragg, N. C.
 ATKINSON, Samuel C., 1st Lieut., Waverly, Ga., Fort Bragg, N. C.
 AUSTIN, Frederick D., Jr., 1st Lieut., Charlotte, N. C., Fort Bragg, N. C.
 BALL, Albert L., 1st Lieut., Memphis, Tenn., Camp Polk, La.
 BARFIELD, William E., 1st Lieut., Jackson, Ga., Fort Bragg, N. C.
 BERGMAN, Sam, 1st Lieut., New Orleans, Camp Polk, La.
 BIRD, Donald P., 1st Lieut., Lakeland, Fla., Camp Polk, La.
 BOOKER, John P., 1st Lieut., Walhalla, S. C., Fort Bragg, N. C.
 BRANTLEY, James W., 1st Lieut., Grandin, Fla., Fort Bragg, N. C.
 BROWN, Randall G., 1st Lieut., Graymont, Ga., Fort Bragg, N. C.
 BURNS, Cornelius B., 1st Lieut., New Orleans, Fort Bragg, N. C.
 CALDER, Alexis B., Captain, Sumter, Miss., Fort Bragg, N. C.
 CAMP, Milton N., 1st Lieut., Fort Lauderdale, Fla., Camp Polk, La.
 CANDLER, Robert W., 1st Lieut., Atlanta, Ga., Camp Polk, La.
 CHASTAIN, Joseph R., 1st Lieut., Buford, Ga., Camp Bragg, N. C.
 CRANE, Wesley T., 1st Lieut., Auburn, Ala., Fort Bragg, N. C.
 DAVIS, Harley F., 1st Lieut., Miami, Fla., Fort Bragg, N. C.
 DAVEY, Walter F., 1st Lieut., Stuart, Fla., Fort Bragg, N. C.
 DAVSON, George R., Captain, Charleston, S. C., Fort Bragg, N. C.
 EDDLEMAN, Thomas S., 1st Lieut., Yazoo City, Miss., Camp Polk, La.
 EDELSON, Edmond K., 1st Lieut., New Orleans, Camp Beauregard, La.
 FARISH, Clarence G., 1st Lieut., Moulton, Ala., Fort Bragg, N. C.
 FILLINGIM, David B., 1st Lieut., Savannah, Ga., Fort Bragg, N. C.
 FISHBEIN, Isadore L., 1st Lieut., Miami Beach, Fla., Fort Bragg, N. C.
 FULENWIDER, John O., Jr., 1st Lieut., Pageland, S. C., Fort Bragg, N. C.
 FULLER, William A., Jr., 1st Lieut., Atlanta, Ga., Camp Polk, La.
 GIBBONS, George E., 1st Lieut., Hampshire, Tenn., Fort Bragg, N. C.
 GLENN, Francis W., 1st Lieut., Miami, Fla., Camp Polk, La.
 GOODWIN, Hugh B., Jr., 1st Lieut., Fort Pierce, Fla., Fort Bragg, N. C.
 HALL, Henry F., Jr., 1st Lieut., Wagener, S. C., Fort Bragg, N. C.
 HERRINGTON, Cecil P., Captain, Alexandria, La., Fort McPherson, S. C.
 HEWES, Archibald C., 1st Lieut., Gulfport, Miss., Camp Polk, La.
 HOLT, Howard P., 1st Lieut., Rodessa, La., Fort Bragg, N. C.
 HOWDON, William M., 1st Lieut., Miami, Fla., Fort Bragg, N. C.
 HOWELL, John B., Jr., 1st Lieut., Canton, Miss., Fort Bragg, N. C.
 HOWELL, Robert S., 1st Lieut., Coral Gables, Fla., Fort Bragg, N. C.
 IVEY, William H., 1st Lieut., Atlanta, Ga., Fort Bragg, N. C.
 JERNIGAN, Henry C., Jr., 1st Lieut., Black Mountain, N. C., Fort Bragg, N. C.

JOHNSON, John R., Major, Jackson, Miss., Camp Polk, La.
 JOHNSON, Wilbur E., 1st Lieut., New Orleans, Fort Bragg, N. C.
 JOYNER, Rayburn N., 1st Lieut., Marianna, Fla., Fort Bragg, N. C.
 KING, Ralph E., 1st Lieut., Winnsboro, La., Fort Bragg, N. C.
 KLINE, Bernard, 1st Lieut., Miami Beach, Fla., Camp Polk, La.
 LAMB, Roland D., 1st Lieut., Columbus, Miss., Fort Bragg, N. C.
 LANCE, Vernal L., 1st Lieut., Blairsville, Ga., Fort Bragg, N. C.
 LARISEY, Carr T., 1st Lieut., Varnville, S. C., Fort Bragg, N. C.
 LEVIN, Jack M., 1st Lieut., Atlanta, Ga., Fort Bragg, N. C.
 MCCURDY, James W., 1st Lieut., Thomaston, Ga., Camp Stewart, Ga.
 MCFARLAND, Osmyn W., 1st Lieut., Baton Rouge, La., Fort Bragg, N. C.
 MARTIN, Robert B., III, 1st Lieut., Shillman, Ga., Fort Oglethorpe, Ga.
 MICKAL, Abe, 1st Lieut., New Orleans, Fort McClellan, Ala.
 MILLER, Cecil E., 1st Lieut., Sarasota, Fla., Camp Stewart, Ga.
 NICHOLSON, James H., Captain, Madison, Ga., Camp Polk, La.
 NOLAN, Lewis E., Captain, St. Petersburg, Fla., Fort Bragg, N. C.
 OLEEN, George G., 1st Lieut., Winston-Salem, N. C., Camp Polk, La.
 PARISH, Frank M., 1st Lieut., Brunswick, Ga., Fort Bragg, N. C.
 PARKER, Charles E., Captain, Montgomery, Ala., Fort Bragg, N. C.
 PARKER, Julian G., 1st Lieut., New Orleans, Camp Polk, La.
 PETERSON, Edward J., 1st Lieut., Birmingham, Ala., Camp Polk, La.
 PHILLIPS, Walter A., 1st Lieut., Arlington, Tenn., Fort Bragg, N. C.
 PHIPPS, Tilden H., 1st Lieut., Tampa, Fla., Fort Bragg, N. C.
 POWELL, Sam M., Jr., 1st Lieut., New Orleans, Fort Bragg, N. C.
 POWELL, William F., 1st Lieut., New Orleans, Camp Polk, La.
 PUTMAN, James H., 1st Lieut., Miami, Fla., Fort Bragg, N. C.
 RAMSAY, Lewis C., 1st Lieut., Memphis, Tenn., Fort McClellan, Ala.
 RAMSEY, Russell W., 1st Lieut., Winter Park, Fla., Fort McClellan, Ala.
 RANEY, Charles J., 1st Lieut., Collinston, La., Fort Bragg, N. C.
 ROBERTS, Thomas L., Jr., 1st Lieut., Miami, Fla., Fort Bragg, N. C.
 ROGERS, Wilbert K., 1st Lieut., Loris, S. C., Fort Bragg, N. C.
 ROSS, Sam H., Jr., 1st Lieut., Seneca, S. C., Fort McClellan, Ala.
 SOX, Carl C., 1st Lieut., Columbia, S. C., Camp Grant, Ill.
 SPARKMAN, Arthur A., Captain, Jackson, Tenn., Fort McClellan, Ala.
 SPRUELL, William H., 1st Lieut., Russellville, Ala., Camp Stewart, Ga.
 STEAD, Vergil G., 1st Lieut., Naples, Fla., Fort Bragg, N. C.
 VAUDRY, James W., 1st Lieut., New Orleans, Fort Oglethorpe, Ga.
 WAGNER, Rudolph T., 1st Lieut., Miami Beach, Fla., Camp Grant, Ill.
 WINSTEAD, Maurice B., 1st Lieut., Washington, N. C., Fort McClellan, Ala.
 ZIMMERMAN, Paul A., 1st Lieut., Miami, Fla., Fort Bragg, N. C.

Orders Revoked

CHRISTIAN, Robert H., 1st Lieut., Baldwin, Miss.
 ELLIOTT, John L., Captain, Savannah, Ga.
 HOCHFELDER, Bernard, 1st Lieut., New Orleans.
 KING, James M., 1st Lieut., Tullahoma, Tenn.
 SAPP, James W., 1st Lieut., Havana, Fla.

SIXTH CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Sixth Corps Area. The Sixth Corps Area comprises the states of Michigan, Illinois and Wisconsin.

ADLER, Edmund R., 1st Lieut., Chicago, Station Hospital, Fort Sam Houston, Texas.
 BLOOM, Charles R., 1st Lieut., Cicero, Ill., Station Hospital, Fort Sill, Okla.
 BRECK, Merrick Roblee, Captain, Chicago, Station Hospital, Fort Sill, Okla.
 BURKET, Walter Cleveland, Major, Evanston, Ill., Station Hospital, Fort Sill, Okla.
 DASHIELL, Grayson F., 1st Lieut., Chicago, General Hospital, Fort Bliss, Texas.
 GROSSMANN, Erwin E., 1st Lieut., Milwaukee, Station Hospital, Fort Sill, Okla.

HALL, James W., Jr., 1st Lieut., Chicago, General Dispensary, Chicago.
 HAWTHORNE, Roy O., Lieut. Col., Kankakee, Ill., William Beaumont General Hospital, El Paso, Texas.
 IMPASTATO, Frank, 1st Lieut., Chicago, Station Hospital, Fort Sill, Okla.
 LUSTOK, Mischa J., 1st Lieut., Milwaukee, William Beaumont General Hospital, El Paso, Texas.
 PERRY, Alvin L., 1st Lieut., Detroit, William Beaumont General Hospital, El Paso, Texas.
 RANNELLS, Charles H., Jr., 1st Lieut., Evanston, Ill., Station Hospital, Fort Sam Houston, Texas.
 ROOT, Charles T., Captain, Detroit, Medical Laboratory, Fort Sam Houston, Texas.
 SARGENT, William F., 1st Lieut., Salem, Ill., Station Hospital, Fort Sam Houston, Texas.
 WACHS, Leonard V., 1st Lieut., Chicago, Michigan Induction Personnel, Detroit.
 WALD, Sidney I., 1st Lieut., DuQuoin, Ill., Station Hospital, Fort Sam Houston, Texas.

EIGHTH CORPS AREA

The following additional medical reserve officers have been ordered to active duty by the Commanding General, Eighth Corps Area, which comprises the states of Colorado, Arizona, New Mexico, Oklahoma and Texas:

ANDERSON, Leighton L., 1st Lieut., Oklahoma City, Station Hospital, Fort Sill, Okla.

BAKER, Albert B., 1st Lieut., Sterling, Colo., 1st Battalion, 77th Field Artillery, Fort Sill, Okla.
 BARTA, Chester K., 1st Lieut., Dallas, Texas, Station Hospital, Fort Sill, Okla.
 BAZE, Roy Ellis, 1st Lieut., Chickasha, Okla., 45th Division, Fort Sill, Okla.
 BERTRAM, Harold F., 1st Lieut., Oklahoma City, 45th Division, Fort Sill, Okla.

CAUSEY, Paul Spencer, 1st Lieut., Douglas, Ariz., 349th Field Artillery, Fort Sill, Okla.
COLLINS, William A., Jr., 1st Lieut., El Paso, Texas, Station Hospital, Fort Sill, Okla.
COWART, O. H., 1st Lieut., Bristow, Okla., Station Hospital, Fort Sill, Okla.
DUGAN, William D., 1st Lieut., Hotchkiss, Colo., 45th Division, Fort Sill, Okla.
FOLLINGSTAD, Alvin H., Captain, Springer, N. M., 349th Field Artillery, Fort Sill, Okla.
GALLAGHER, Paul, Lieut. Col., El Paso, Texas, Station Hospital, Fort Bliss, Texas.
GALLAHER, Paul C., 1st Lieut., Shawnee, Okla., Station Hospital, Fort Sill, Okla.
GARCIA, Robert E., 1st Lieut., Parker, Ariz., 45th Division, Fort Sill, Okla.
HALL, Henry Lee, 1st Lieut., Denver, 349th Field Artillery, Fort Sill, Okla.
HAMPTON, Daniel E., 1st Lieut., Denver, Recruit Reception Center, Fort Bliss, Texas.
HAMRA, Henry M., 1st Lieut., Phillips, Texas, Station Hospital, Fort Sill, Okla.
HERNDON, James H., 1st Lieut., Dallas, Texas, Station Hospital, Fort Sill, Okla.
HUNTER, Richard O., 1st Lieut., Bartlett, Texas, 45th Division, Fort Sill, Okla.
HUTCHINSON, Ben B., 1st Lieut., Lubbock, Texas, 45th Division, Fort Sill, Okla.
KENNERLY, Thomas P., 1st Lieut., Houston, Texas, Station Hospital, Fort Sam Houston, Texas.
KINSINGER, Ralph R., 1st Lieut., Blackwell, Okla., Station Hospital, Fort Sill, Okla.

MARKEWICH, Jake, 1st Lieut., Beaumont, Texas, 45th Division, Fort Sill, Okla.
MAY, LESTER M., 1st Lieut., San Antonio, Texas, 45th Division, Fort Sill, Okla.
MAYFIELD, Warren T., Captain, Norman, Okla., Fort Bliss, Texas.
MELINDER, Roy J., 1st Lieut., Claremore, Okla., 45th Division, Fort Sill, Okla.
MILLER, Hubert W., 1st Lieut., Artesia, N. M., 349th Field Artillery, Fort Sill, Okla.
MOHLER, Eldon Clyde, 1st Lieut., Ponca City, Okla., 2d Observation Battalion, Fort Sill, Okla.
RICHARDSON, George S., 1st Lieut., Austin, Texas, Fort Bliss, Texas.
SADLER, LeRoy H., 1st Lieut., Oklahoma City, Station Hospital, Fort Sill, Okla.
SCHNITTMAN, Jacob, 1st Lieut., Gould, Okla., 45th Division, Fort Sill, Okla.
SHERE, Norbert L., 1st Lieut., Denver, Station Hospital, Fort Sill, Okla.
SMITH, Thomas E., Captain, Dallas, Texas, Station Hospital, Fort Sam Houston, Texas.
TIPTON, George W., 1st Lieut., Marshall Ford, Texas, 45th Division, Fort Sill, Okla.

Orders Revoked

DAVIS, Frank Milton, Major, San Antonio, Texas.
HODGES, Tom Wiley, 1st Lieut., Boston.
ROBERTSON, David Lyle, 1st Lieut., Wichita Falls, Texas.
ROSS, Lloyd L., 1st Lieut., San Antonio, Texas.
SHOTTS, C. C., 1st Lieut., Pleasanton, Texas.
STANTON, William Paul, 1st Lieut., San Antonio, Texas.

The letter reporting revocation of orders in the case of 1st Lieut. Leon LoBello in THE JOURNAL, February 15, p. 601, was in error. Orders in his case were not revoked.

NAME NINE GENERAL ARMY HOSPITALS

The War Department announced on February 14 that names have been selected for each of the nine Army general hospitals, all of which are under construction or will be started soon in various parts of the United States. The hospitals have been named for former army medical officers who served with distinction in the service of the United States. The new hospitals, the location, and the officer for whom each is named, are as follows:

BARNES GENERAL HOSPITAL, Vancouver Barracks, Wash., Brevet Major General Joseph K. Barnes.
BILLINGS GENERAL HOSPITAL, Fort Benjamin Harrison, Ind., Lieutenant Colonel John Shaw Billings.
HOFF GENERAL HOSPITAL, Santa Barbara, Calif., Colonel John Van Rennselaer Hoff.
LAGARDE GENERAL HOSPITAL, New Orleans, Colonel Louis Aneatole LaGarde.
LAWSON GENERAL HOSPITAL, Atlanta, Ga., Brevet Brigadier General Thomas Edwin Lawson.
LOVELL GENERAL HOSPITAL, Fort Devens, Mass., Surgeon General Joseph Lovell.
O'REILLY GENERAL HOSPITAL, Springfield, Mo., Major General Robert Maitland O'Reilly.
STARK GENERAL HOSPITAL, Charleston, S. C., Colonel Alexander Newton Stark.
TILTON GENERAL HOSPITAL, Fort Dix, N. J., Lieutenant Colonel Henry Remsen Tilton.

PROTECTION OF DEFENSE WORKERS' HEALTH

About one hundred and fifty federal, state and city hygienists attended a national conference of governmental industrial hygienists, February 17, at the U. S. Public Health Service Building, Washington, D. C., for a two days consideration of a program to protect the health of workers in national defense industries. The program was outlined by Dr. C. D. Selby, chairman of the subcommittee on industrial health and medicine for the Federal Security Agency. The need of a \$1,650,000 annual expenditure for this purpose was pointed out, to provide the training of additional personnel, the setting up of training centers at universities, and for intensive training courses in industrial health and hygiene in governmental plants. Some of this money would be spent for the gathering of information by research workers on the prevention and treatment of disease conditions due to environmental factors and for research into harmful properties of many new substances which have come into use in manufacturing munitions.

The boom towns which have sprung up around the plants engaged in national defense work have created many problems in health and hygiene. The program discussed was drawn up by a joint committee from Dr. Selby's subcommittee and from the Council on Industrial Health of the American Medical

Association. The joint committee pointed out the loss of time from illness by workmen, an average it was said of more than eight days a year, much of which is preventable, while the rate for women is still higher. This loss of time amounts to a grand and staggering total of more than one million work years a year.

The conference was addressed also by Dr. Warren F. Draper, now acting surgeon general of the United States Public Health Service, who pointed out that already the division of industrial hygiene has placed four units in the field, each consisting of a physician and an engineer, to work with state industrial hygiene divisions, and that it is planned to add ten or twelve more such mobile units.

HOSPITAL ASSOCIATION TO AID BRITISH HOSPITALS

In view of the fact that 50 per cent of all British hospitals have been damaged in war raids and are in urgent need of assistance, the Greater New York Hospital Association announced on January 17 the organization of its one hundred and two hospitals for the collection of surgical and medical supplies, funds and clothing to aid British hospitals. The hospital association unanimously pledged full cooperation with the British War Relief Society in raising money and supplies and appointed a committee for this purpose, the chairman of which is James U. Norris, superintendent of Woman's Hospital. Each Greater New York Hospital Association member has been asked to set up its own committee for this purpose. The activities suggested by the central committee include the contribution of medical samples received by hospital staff members, collection of all discarded but serviceable surgical equipment, the raising of funds through benefit parties, and knitting by nurses and other women employees.

YELLOW FEVER VACCINE

Secretary of War Stimson has announced that all army troops on duty in tropical stations in the Western Hemisphere or hereafter to be ordered to such stations will be vaccinated against yellow fever. This will include troops stationed in Panama, Puerto Rico and the bases to be established in the Caribbean. About 50,000 men and officers at stations in this area will be vaccinated at once and more later as the garrisons are enlarged. The vaccine used, it is said, was developed in 1936 from attenuated strains of tissue-culture yellow fever virus. Since then nearly 2,000,000 persons in Brazil have been vaccinated. Yellow fever, it is said, has been practically driven out of the Canal Zone, but it continues to be a menace in some parts of Central and South America.

ORGANIZATION SECTION

AMERICAN MEDICAL ASSOCIATION ON TRIAL

THE TRIAL OF THE CASE OF THE UNITED STATES OF AMERICA
VS.

THE AMERICAN MEDICAL ASSOCIATION, A CORPORATION, THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, A CORPORATION, THE HARRIS COUNTY MEDICAL SOCIETY, AN ASSOCIATION, THE WASHINGTON ACADEMY OF SURGEONS, AN ASSOCIATION, ARTHUR CARLISLE CHRISTIE, COURSEN BAXTER CONKLIN, JAMES BAYARD GREGG CUSTIS, WILLIAM DICK CUTTER, MORRIS FISHBEIN, THOMAS ALLEN GROOVER (DECEASED), ROBERT ARTHUR HOOE, ROSCO GENUNG LELAND, THOMAS ERNEST MATTINGLY, LEON ALPHONSE MARTEL, FRANCIS XAVIER MC GOVERN, THOMAS EDWIN NEILL, EDWARD HIRAM REEDE, WILLIAM MERCER SPRIGG, WILLIAM JOSEPH STANTON, JOHN OGLE WARFIELD JR., OLIN WEST, PRENTISS WILLSON, WILLIAM CREIGHTON WOODWARD, WALLACE MASON YATER, JOSEPH ROGERS YOUNG.

(Continued from page 872)

FEBRUARY 19, MORNING

THE COURT:—What shall we begin with?

Mr. Kelleher:—We propose to read now some of the documentary evidence to the jury.

(Counsel discussed further with the Court admission of documents.)

Mr. Kelleher:—I now read from exhibit 248, carbon copy of original letter, over the signature of defendant Cutter, addressed to Dr. J. I. Scarborough, Trinity Hospital, 2000 Main Street, Little Rock, Ark., Sept. 9, 1935:

U. S. EXHIBIT 248

"It has been reported that Trinity Hospital is engaged in contract practice of medicine.

"In order that we may have reliable information on this point, will you be good enough to explain just what is the form of service in which you are engaged? Could you send me samples of your announcements and agreements? Do you employ solicitors to procure clients?

"Very truly yours,"

Exhibit 249 is a letter from J. I. Scarborough to the American Medical Association, Attention: Dr. William D. Cutter, dated Sept. 16, 1935:

U. S. EXHIBIT 249

"Dear Dr. Cutter:

"Replying to your inquiry of the 9th, I wish to confirm the report that Trinity Hospital is engaged in contract practice.

"The attitude of the A. M. A. toward us in this matter has been so arbitrary, unreasonable and unfair that we feel disinclined to discuss the matter further.

"Before going to the trouble to supply you with the information requested may I ask what is the purpose of your inquiry and what use you expect to make of the information, if supplied?

"Please understand that there is nothing in our plan of practice to be concealed and that my remarks are not directed at you personally but at the organization which you represent. In fact I have very pleasant recollections of you back in the old Baltimore days.

"Very truly yours,
J. I. Scarborough."

Exhibit 256 is a carbon copy of an original letter over the signature of the defendant Cutter. It is dated Sept. 23, 1935, addressed to Dr. J. I. Scarborough, Trinity Hospital, 2000 Main Street, Little Rock, Ark.:

U. S. EXHIBIT 256

"Dear Dr. Scarborough:

"Thank you for your letter of September 16. One of the duties assigned to this Council on Medical Education and Hospitals is to maintain a Register of Hospitals accepted by the American Medical Association. I am pleased to send under separate cover a copy of the Register with our compliments.

"I need not tell you the benefits that come to a hospital through recognition in that Register and the favorable publicity which is given since the Register is published in every issue of the American Medical Directory and in the special Hospital Numbers of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

"Enclosed is a copy of the 'Essentials of a Registered Hospital' and a copy of the 'Principles of Medical Ethics' to which the 'Essentials' make reference. Our object in writing to you was to extend to you the privilege of speaking for the hospital, and particularly supplying infor-

mation on those points against which some objections have been made and which practices if they do exist and if persisted in would jeopardize the registration of the hospital. "Very truly yours,"

In the margin is a pencil notation reading as follows:

"No reply to 10-7-35. Continue hospital in Register?"

Exhibit 250 is a letter from C. T. Snyder, Superintendent, Trinity Hospital, to American Medical Association, Attention: Medical Directory Department, dated July 7, 1936:

U. S. EXHIBIT 250

"Gentlemen:

"We received our new medical directory today, on our order of August 20, 1935, signed by Dr. M. D. Ogden of our staff, and I find that our hospital is left out of the listing of Little Rock hospitals.

"All information blanks ever received from you have been filled out and returned promptly. We have been listed every year since 1924 and have bought a directory every year. We are interested in knowing the reason for the omission.

"Yours very truly,
Trinity Hospital."

Exhibit 251 is a carbon copy of an original letter written over the signature of the defendant Cutter, dated July 16, 1936, addressed to Miss C. T. Snyder, Superintendent, Trinity Hospital, Little Rock, Ark.:

U. S. EXHIBIT 251

"My dear Miss Synder:

"Your letter of July 7 to the Directory Department has been referred to the Council on Medical Education and Hospitals. This Council prepares the lists of hospitals for the Directory.

"We have, as you say, been pleased to carry the Trinity Hospital in our directory list and register of hospitals for a number of years. However, it became apparent that policies adopted by the hospital made it inconsistent for us to further continue to endorse the institution before our readers. This has reference to methods resorted to in connection with the contract for hospitalization and medical service.

"We had correspondence with Dr. J. I. Scarborough but did not receive any answer to our letter written him on September 23, 1935.

"Very truly yours,"

Exhibit 210 is an original letter from John Walker Moore to the Editor of the American Medical Association, Chicago, Illinois, on the letterhead of the Louisville City Hospital, dated May 14, 1937:

U. S. EXHIBIT 210

"Dear Sir:

"I have a letter from the Trinity Hospital Private Clinic, Little Rock, Ark., asking me to recommend them an internist. In the letter they state that the clinic is owned and operated by Drs. J. I. Scarborough, M. D. Ogden, O. K. Judd and R. B. Moore.

"Will you kindly inform me whether or not this clinic is in good standing.

"Very sincerely yours,
John Walker Moore
Staff Executive."

Exhibit 209 is a carbon copy of an original letter over the signature of defendant Cutter dated May 17, 1937, addressed to Dr. John W. Moore, Louisville City Hospital:

U. S. EXHIBIT 209

"My dear Doctor Moore:

"Trinity Hospital, operated by the physicians mentioned in your letter, is not recognized in the American Medical Association register of hospitals. We also understand that their scheme of contract practice is not in harmony with their local medical organization, the County Medical Society.

"Very truly yours,"

Exhibit 8 is a publication entitled "Proceedings of the House of Delegates of the American Medical Association, the Eighty-Fifth Annual Session held at Cleveland, Ohio, June 11-15, 1934," and on page 35 appears the following headed, "Resolution limiting physicians on staffs of hospitals approved for intern training to members of component county medical societies":

U. S. EXHIBIT 8 (EXCERPT)

"Dr. G. Henry Mundt, Illinois, presented the following resolution, which was referred to the Reference Committee on Medical Education: (45) (46)

"Resolved, That it is the opinion of the House of Delegates of the American Medical Association that physicians on the staffs of hospitals approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local county medical societies and that the House of Delegates requests the Council on Medical Education and Hospitals to take this under advisement."

Subsequent portions of the proceedings show that that resolution was adopted by the House of Delegates.

Exhibit 246 is a carbon copy of an original letter over the signature of defendant Cutter dated Dec. 1, 1936, addressed to Dr. Christopher G. Parnall, Medical Director, Rochester General Hospital, Rochester, N. Y.:

U. S. EXHIBIT 246

"Dear Dr. Parnall:

"We wrote you on September 8 calling your attention to a recent resolution passed by the House of Delegates of the American Medical Association, as follows:"

The resolution is then quoted.

"Our analysis of the recently submitted staff list was quoted in the inspection report which was sent you at the same time.

"We are anxious to learn from approved hospitals as to whether they are in general agreement with the principle laid down in this resolution, and would be pleased to have your comments in the matter."

"Very truly yours,"

Exhibit 254 is an original letter from C. G. Parnall to Dr. William D. Cutter, Secretary, American Medical Association, dated Dec. 17, 1936:

U. S. EXHIBIT 254

"Dear Dr. Cutter:

"Relative to the resolution of the House of Delegates favoring a rule by the Council on Medical Education and Hospitals limiting membership on a hospital staff to members in good standing of local county societies, I am in somewhat of a quandary as to just what to say. Personally I feel that members of hospital staffs should be members of their local county societies. However, I do not believe in any inflexible rule setting up such a stand of eligibility.

"I suggested to our Board of Directors a change in the By-Laws relating to staff appointments, requiring that unless otherwise voted by the Medical Board, no physician would be eligible to the Visiting and Associate positions of the staff unless he is a member in good standing of the county medical society. When this proposal was referred to the Medical Board for an opinion, I was rather surprised to find that its members—all members of the county medical society—were unanimously against it. Their feeling was that the county medical society should stand on its own merits and that it should offer enough of itself so that practically every member of a hospital staff would seek membership, and that anything that savored of compulsion would subject Medicine to the same thing that rouses the resentment of doctors to the actions and attitudes of nonmedical organizations.

"It was pointed out that only a small percentage of the staff were not members of the county society and that most of this group were younger men, most of whom will shortly join the county society. I am sending you a list of our staff appointments for the hospital year 1935-36, with the non-members checked. You will note that allowing for duplications, excluding the Honorary and Consulting Divisions, there are 128 members, 118 of whom are members of the county society, leaving 10, or 8%, who are not. Even on the Honorary inactive staff of seven members, all but one being over 75 years of age, there is only one who is not a member of the county society. Of the 22 on the Consulting Staff, the only two who are not members of the county society are the Professor of Bacteriology at the University and a bacteriologist who is not an M.D. Our Staff represents practically one fourth of the active membership of the county society. On its membership are the President of the New York State Medical Society; the President, the President-Elect and the Secretary of the Medical Society of the County of Monroe.

"I personally have been a member of the American Medical Association continuously for over thirty years and two of my sons are members of county societies.

"Under the circumstances, as far as support of organized medicine is concerned, could the House of Delegates very well hold that the Rochester General is an unfit place for the training of interns?"

"With warmest personal regards and wishes for a Merry Christmas and a successful New Year, I am,

"Sincerely yours,

C. G. Parnall."

Exhibit 255 is a carbon copy of an original letter over the signature of defendant Cutter, dated Dec. 21, 1936, addressed to Dr. C. G. Parnall, Medical Director, Rochester General Hospital, Rochester, N. Y.:

U. S. EXHIBIT 255

"My Dear Doctor Parnall:

"In response to your letter of December 17, let me express my appreciation of your information and your comments on the affiliation of your staff members with your medical society.

"The intention behind the resolution referred to was to smoke out from the staff of some hospitals certain men who were regarded as objectionable but whom the hospital felt a delicacy in removing.

"I notice in the figures which you have kindly supplied, that your staff enjoys a very fortunate position with regard to the support of your professional organization, and that apparently any object which the Council might have had in view has already been anticipated.

"Cordially yours,"

Exhibit 30 is a carbon copy of an original letter over the signature of C. M. Peterson of the American Medical Association, dated Dec. 22, 1937, addressed to Mr. Theodore Wiprud, Executive Secretary, Medical Society of Milwaukee, Wisconsin:

U. S. EXHIBIT 30

"Dear Mr. Wiprud:

"Enclosed are the regulations governing internship approval by the Council.

"To this should be attached the following resolution of the House of Delegates of the American Medical Association adopted in Cleveland 1934."

And the resolution which I have read is quoted.

"As far as the language of the resolution is concerned, no distinction is drawn between the full attending staff and other staff divisions. As a matter of actual practice, we carefully check the honorary, consulting, full attending and associate attending staffs in conjunction with our program of inspections. We obtain at the same time a list of all physicians who have courtesy privileges only. We do not check the courtesy list unless we find that all members of the other divisions are in good standing simply because of the magnitude of the task.

"Under this principle we nevertheless call the attention of the authorities and staff of every hospital inspected and we have received favorable replies in practically every instance.

"If we can be of further aid to you in explaining our method of procedure as outlined above, please call upon us.

"Very truly yours,"

Exhibit 145 is an opinion of the Judicial Council of the American Medical Association entitled, "Appeal to the Judicial Council of the American Medical Association of Dr. A. L. Curtin, Dr. H. C. Dallwig, Dr. J. E. Rueth, Dr. Gerald A. Sullivan, Dr. H. F. Walters, from the Decision of the Council of the State Medical Society of Wisconsin affirming the action of the Board of Directors of the Medical Society of Milwaukee County, Wisconsin, expelling the above named doctors from membership."

The opinion is dated Feb. 15, 1938, and the opinion reads as follows:

U. S. EXHIBIT 145

"In 1935, at a meeting of the State Medical Society of Wisconsin, action was taken disapproving the establishment of any plan for the medical care of low income groups by persons not representing the State or County Societies.

"On February 8th, 1936, a special meeting of the Board of Directors of the Medical Society of Milwaukee County was called to discuss a plan for the care of the employees of the International Harvester Company proposed by Drs. Curtin, Rueth and others. Drs. Rueth, Curtin and Dallwig were present. The essential features of the plan as presented by this group were as follows:

"1. Unlimited medical and surgical service for \$1.00 per month for a single man; \$2.00 per month for a man and wife; \$3.00 per month for man, wife and family.

"2. Only diseases excluded from the plan—mental and contagious. Hospitalization not included.

"3. There would be no solicitation of patients.

"4. All physicians who joined the clinic would benefit from any profits.

"5. Patients may select any physician on the staff.

"6. Preventive treatment not included in the plan.

"7. No written contract between patient and clinic. Participants in plan restricted to those with income of \$200.00 or less per month.

"It was stated that plans to remodel proposed offices had been made, a lease had been signed, but no equipment had been purchased.

"Between February 10, 1936, and February 14th, meetings of the Public Policy Committee and the Board of Directors were held and Drs. Curtin, Rueth and Dallwig notified by letter that the plan was disapproved. At the February 14th meeting the Board of Directors directed letters requesting resignation from the society be sent to the doctors proposing the plan. These letters were sent February 18th and were in the form of charges citing nine offenses.

"Late in February, on the advice of counsel the doctors proceeded with their plans and on February 26th announced that the clinic would open for business April 1, 1936. In their letter of announcement they stated that subscribers 'must come of their own free will and without solicitation,' making it very plain that the doctors as physicians were so restricted by the Principles of Medical Ethics.

"March, 1936. About the middle of March the International Harvester Council (an employees' organization) prepared 'Instructions to Patients,' of which the clinic doctors had 1,000 copies printed to be given out in the plant to those subscribing to the plan.

"March 17th the doctors by letter refused to resign from the medical society denying all charges contained in the letter requesting their resignation. March 20th at a special meeting the Board of Directors formally preferred charges and directed that an answer be filed by March 27th. The doctors made answer and a hearing was had March 30th. At this hearing the accused were found guilty and expelled on three counts, viz.:

"1. Violation of Chapter XI, Sec. 3. By-Laws of the State Society (conduct tending to defeat the purposes of the society).

"2. Violation of Chapter III, Art. I, Sec. 4, Principles of Medical Ethics (Solicitation of patients, advertising).

"3. Violation of Chapter III, Art. VI, (Revised) Sec. 3, Principles of Medical Ethics (contract practice contrary to sound public policy).

"Appeal from the action of the Board of Directors of the Medical Society of Milwaukee County to the Council of the State Medical Society of Wisconsin and from the decision of that Council approving the action of the county society to the Judicial Council of the American Medical Association was duly made and heard. The claim was made by the appellants before the Judicial Council that they had not had a fair trial before the Council of the State Medical Society of Wisconsin by reason of the fact that the Executive Secretary of the State Association had furnished legal counsel at the trial of the appellants before the Board of Directors of the Medical Society of Milwaukee County, thus prejudicing the Council of the State Medical Society of Wisconsin against their cause on appeal. The Judicial Council finds no evidence supporting such claim. It believes that such employment was customary and only for the purpose of protection of both sides of controversies by assuring that procedure should be correct and each side protected in its rights. The counsel was discharged on the completion of the trial before the Board of Directors of the county society and had no connection with any further procedures.

"The Judicial Council affirms the action of the Council of the State Medical Society of Wisconsin in respect to the charge of violation of Chapter III, Art. I, Sec. 4, of the Principles of Medical Ethics (solicitation of patients, advertising). The Board of Directors of the county society found these appellants guilty on this charge. The Council of the state society affirmed that decision. The Judicial Council finds no error in the interpretation of the Principles of Medical Ethics by either of these bodies, nor error in procedure.

"The Judicial Council affirms the action of the Council of the State Medical Society of Wisconsin in respect to the charges of violation of Chapter III, Art. VI, (Revised) Sec. 3, Principles of Medical Ethics (contract practice contrary to sound public policy). The appellants claim that at the time charges were preferred against them (March 20, 1936) and they were expelled (March 30, 1936) they were not operating under the plan and engaging in contract practice; that their practice under the plan did not begin until April 1, at which time the clinic was opened; that therefore they were not guilty when and as charged.

"The fact that no medical care had as yet been given at the time charges were preferred is not a reversible error in procedure. The appellants had abundant warning that the plan under which they proposed to operate was disapproved by the Board of Directors of the county society. They officially presented their plan to the board on February 8th, 1936. On February 14th, after disapproval of the plan, and after statements by the appellants to the Board of Directors that they would prosecute the plan even though disapproved, they were officially notified of disapproval and request for their resignation was made which request was refused.

"That at the time charges were preferred against them they had not as yet treated a patient under the plan is inconsequential. Certain preliminary preparations to treat patients necessarily had to be made before giving service but such preparations would not be made unless assurance were had by either written or verbal agreement or understanding which constituted a contract. The appellants were therefore engaged in contract practice from the time the agreement was made notwithstanding the fact that the preparations to treat patients had not been completed.

"The Judicial Council is distinctly of the opinion that practice under the terms and conditions to which these appellants have agreed with the employees of the International Harvester Company constitutes a violation of Chapter III, Art. VI, (Revised) Sec. 3, of the Principles of Medical Ethics (contract practice contrary to sound public policy).

"In respect to the charge that the appellants violated Chapter XI, Sec. 3, By-Laws of the State Medical Society of Wisconsin, the Judicial Council makes no pronouncement. It is not necessary that an accused shall be guilty on all charges made. If the accused is guilty on one or more major charges and no reversible error in the procedure of the trial is found, the Judicial Council will not interfere in the verdict pronounced by the county society and upheld by the state association. These appellants were found guilty by the Board of Directors of the Medical Society of Milwaukee County on two major charges of violation of the Principles of Medical Ethics of the American Medical Association, which action was sustained by the Council of the State Medical Society of Wisconsin. There was no reversible error in the proceedings.

"The actions of the Board of Directors of the Medical Society of Milwaukee County and of the Council of the State Medical Society of Wisconsin is approved."

Exhibit 232 is a carbon copy of an original letter written over the signature of the defendant Cutter and addressed to Dr. E. T. Thompson, Medical Superintendent, Mount Sinai Hospital, Milwaukee, dated July 17, 1936:

U. S. EXHIBIT 232

"Dear Doctor Thompson:

"It has come to our attention, through correspondence with the Medical Society of Milwaukee County, that certain physicians have been expelled from that society through participation in an organization known as

'Milwaukee Medical Center.' It is also reported that certain of these same individuals continue as members of your attending staff with hospital privileges.

"May we call your attention to the recent resolution passed by the House of Delegates of the American Medical Association as follows: "Resolved, That it is the opinion of the House of Delegates of the American Medical Association that physicians on the staffs of hospitals approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local county medical societies and that the House of Delegates requests the Council on Medical Education and Hospitals to take this under advisement."

"What possibility, if any, exists for observance of the principle laid down in this resolution?

"Very truly yours,"

Exhibit 233 is an original letter from E. T. Thompson to William D. Cutter, M.D., Secretary, American Medical Association, dated July 30, 1936:

U. S. EXHIBIT 233

"Dear Dr. Cutter:

"This letter will acknowledge with thanks your inquiry of July 17th, 1936 in regard to the controversy between the Milwaukee County Medical Society and the members of the Milwaukee Medical Center.

"Mount Sinai Hospital has been forced, because of fear of itself being involved in legal complications, to take the stand that until this matter is adjudicated it is deemed advisable to take no drastic action.

"With kindest personal regards,

"Very sincerely yours,
E. T. Thompson."

Exhibit 247 is a carbon copy of an original letter written over the signature of defendant Cutter to Dr. Edward T. Thompson, Superintendent, Mount Sinai Hospital, Milwaukee:

"Dear Doctor Thompson:

"Please let me thank you for your letter of July 30. It will be very greatly appreciated if you will let me know whenever any action is taken.

"Cordially yours,"

Exhibit 244 is a carbon copy of a letter written over the signature of defendant Cutter dated Oct. 24, 1936, addressed to Dr. Edward T. Thompson, Superintendent, Mount Sinai Hospital, Milwaukee:

U. S. EXHIBIT 244

"Dear Doctor Thompson:

"This is in continuation of our previous correspondence about qualifications for staff membership in Mount Sinai Hospital. We have been informed that the Council of the Wisconsin State Medical Society has upheld the action of the Milwaukee County Medical Society in expelling certain physicians for unethical behavior.

"How does this action affect Mount Sinai Hospital? Are all members on your staff in good standing with the Milwaukee County Medical Society or eligible for membership in that society?

"Very truly yours,"

Exhibit 245 is an original letter from Edward T. Thompson, M.D., to William D. Cutter, M.D., Secretary of the American Medical Association, Chicago, dated Oct. 30, 1936:

U. S. EXHIBIT 245

"Dear Mr. Cutter:

"I have your letter of October 24th in regard to the action of the Council of the Wisconsin State Medical Society expelling certain physicians from the Milwaukee County Medical Society.

"I beg to inform you that the situation at Mount Sinai Hospital is still in status quo.

"Very truly yours,"

Exhibit 234 is a carbon copy of an original letter over the signature of the defendant Cutter addressed to Dr. Edward T. Thompson, Superintendent, Mount Sinai Hospital, Milwaukee, dated Nov. 27, 1936:

"Dear Doctor Thompson:

"We have now received word from all hospitals in Milwaukee concerning the status of certain physicians who were recently expelled from the Milwaukee County Medical Society.

"This matter will be reviewed by the Council at its next regular meeting in February following which we will be in position to acquaint you with any further action or recommendation.

"However, if any changes occur in the situation at Mount Sinai Hospital we shall be very glad to have you keep us advised.

"Very truly yours,"

Exhibit 216 is an original letter from Edward T. Thompson to William D. Cutter, M.D., American Medical Association, Chicago, dated Oct. 22, 1937:

"Dear Dr. Cutter:

"Considerable time has elapsed since I communicated with you in regard to the status of the men associated with the Milwaukee Health Center. As you will recall, these men were expelled from the County

Medical Society over a year and a half ago and at that time you wrote to me to ascertain the attitude of Mount Sinai Hospital, which letter I answered under date of July 30th, 1936.

"We have heard nothing definite in regard to this matter since that date and we are anxious to know where the matter stands at the present time. Has the action of the County Medical Society been upheld by the American Medical Association? If not, when will action be taken?"

"Mount Sinai Hospital has always been, and I hope will always be, cooperative with organized medicine, and where we can be of assistance to the County Medical Society, we do not hesitate to render such assistance. In fact I have on my desk at the present time a thank you letter from the secretary of the County Medical Society thanking the hospital for its participation in a Preschool Round Up.

"As I explained in previous correspondence, we have withheld decision in regard to physicians from the Milwaukee Health Center pending action by the American Medical Association.

"I hope to be in Chicago on Tuesday, October 26th, and would like to have the opportunity of discussing this matter with you.

"With kindest personal regards, I am

"Very truly yours,

Edward T. Thompson, M.D."

Leading off from the next to the last paragraph of the letter, which reads, "I hope to be in Chicago on Tuesday, October 26th," is a pencil notation reading:

"A. T. doesn't know if he called."

Exhibit 217 is a carbon copy of a letter over the signature of the defendant Cutter addressed to Dr. Edward T. Thompson, Superintendent, Mount Sinai Hospital, North Twelfth Street and West Kilbourn Avenue, Milwaukee, dated Nov. 3, 1937:

U. S. EXHIBIT 217

"Dear Doctor Thompson:

"The matters about which you inquire are still under discussion by the Judicial Council of the American Medical Association. As soon as a decision has been reached, we shall be sure to apprise you of the fact.

"Very truly yours,"

Exhibit 206 is an original letter from Edward T. Thompson, M.D., to William D. Cutter, Secretary, on the letterhead of Mount Sinai Hospital, Milwaukee, dated April 6, 1938:

U. S. EXHIBIT 206

"Dear Dr. Cutter:

"I am writing you to ascertain whether or not there has been any change in the situation concerning compulsory County Medical Society membership on approved voluntary hospital staffs.

"It has been several months since any correspondence has passed between us and since we are vitally interested in this matter, I would appreciate hearing from you in regard to it.

"With kindest personal regards, I am

"Very truly yours,

Edward T. Thompson, M.D."

Exhibit 207 is a carbon copy of an original letter written over the signature of defendant Cutter addressed to Dr. Edward T. Thompson, Superintendent, Mount Sinai Hospital, North Twelfth Street and West Kilbourn Avenue, Milwaukee, dated April 13, 1938:

U. S. EXHIBIT 207

"Dear Doctor Thompson:

"We have recently been informed that the Judicial Council of the American Medical Association has sustained the action of the Milwaukee County Medical Society in the matter of certain physicians recently expelled from society membership.

"Accordingly, we shall be anxious to know what action Mount Sinai Hospital is taking in respect to the resolution of the House of Delegates pertaining to staff appointments in hospitals approved for intern training.

"Very truly yours,"

Exhibit 208 is an original letter from Edward T. Thompson, Superintendent, addressed to the defendant William D. Cutter, dated April 15, 1938:

U. S. EXHIBIT 208

"Dear Dr. Cutter:

"Thank you for your letter of April 13th. I note that you referred to the resolution of the House of Delegates pertaining to staff appointments in hospitals approved for intern training. In checking our correspondence I note under date of July 17th, 1936 you wrote as follows:

"May we call your attention to the recent resolution passed by the House of Delegates of the American Medical Association, as follows:

"Resolved, That it is the opinion of the House of Delegates of the American Medical Association that physicians on the staffs of hospitals approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local county medical societies and that the House of Delegates requests the Council on Education and Hospitals to take this under advisement."

"We note particularly that this resolution passed by the House of Delegates was referred to the Council on Medical Education and Hospitals. We are wondering whether or not the Council on Medical Education and Hospitals has taken any definite stand in regard to this matter.

"I would appreciate receiving this information as soon as possible in order that I may present the whole matter to the staff this next regular meeting.

"Very truly yours,

Edward T. Thompson, M.D."

Exhibit 211 is a carbon copy of an original letter over the signature of F. H. Arestad, M.D., of the American Medical Association, addressed to Dr. Edward T. Thompson, Superintendent, Mount Sinai Hospital, Milwaukee, dated May 5, 1938:

U. S. EXHIBIT 211

"Dear Doctor Thompson:

"In the absence of Dr. William D. Cutter, I have been requested to reply to your letter of April 15. May I say first of all that the American Medical Association does not have, nor does it assume, legal authority over any hospital and consequently does not presume to dictate how hospitals should conduct their affairs.

"If, however, a hospital desires the endorsement of the Council, it should be willing to comply with the principles which the American Medical Association considers necessary. One of the basic requirements is that the medical staff should be composed of regular physicians properly qualified as to training, licensure and ethical standing.

"When a hospital, therefore, employs physicians expelled from county medical society membership on the basis of unethical conduct it is obvious that the hospital's standing is involved not only from the point of view of intern training but also as regards basic registration. We are anxious, therefore, to be notified of any action taken by your executive board.

"Very truly yours,

F. H. Arestad, M.D."

Exhibit 205 is a carbon copy of an original letter over the signature of defendant Cutter addressed to Dr. Edward T. Thompson, Mount Sinai Hospital, dated July 14, 1938:

U. S. EXHIBIT 205

"My dear Doctor Thompson:

"In view of the fact that we have received no reply to our letter of May 5 and no notification of any action taken with respect to the employment of physicians expelled from the county medical society, we wish to inform you that we are recommending to the Council that Mount Sinai Hospital be removed from the approved intern list and also from the Register of the American Medical Association.

"Very truly yours,"

Exhibit 212 is a carbon copy of an original letter over the signature of the defendant Cutter addressed to Dr. Edward T. Thompson, Medical Superintendent, Mount Sinai Hospital, Milwaukee, dated July 20, 1938:

U. S. EXHIBIT 212

"Dear Doctor Thompson:

"With reference to your recent telephone inquiry we wish to state that in our opinion the action taken by the county medical society in expelling physicians for unethical practice constitutes an equal censure of other doctors participating in the same clinic enterprise.

"Very truly yours,"

Exhibit 213 is an original letter from Edward T. Thompson, M.D., to William D. Cutter, Executive Secretary, American Medical Association, dated July 21, 1938:

U. S. EXHIBIT 213

"Dear Dr. Cutter:

"This will inform you that on recommendation of the Executive Committee of the Staff of Mount Sinai Hospital and ratification by the Board of Directors of the Mount Sinai Hospital, Drs. A. L. Curtin and H. F. Wolters were removed from the active staff of Mount Sinai Hospital and courtesy privileges were withdrawn from these two men, as well as from Drs. Sullivan, Rueth and Dallwig, in accord with your letter dated July 14th, 1938 and telephone conversation held with you on Friday, July 15th, 1938.

"Very sincerely yours,

Edward T. Thompson, M.D."

Exhibit 214 is an original letter from Edward T. Thompson, Superintendent, Mount Sinai Hospital, to the defendant Cutter, dated July 21, 1938:

U. S. EXHIBIT 214

"Dear Dr. Cutter:

"To supplement our letter of July 21st and to conform with your letter of July 20th we wish to inform you that Dr. B. H. Oheremist has been removed from the courtesy staff of Mount Sinai Hospital and courtesy privileges withdrawn.

"Very truly yours,

Edward T. Thompson, M.D."

Mr. Lewin:—I shall read an original letter from M. W. Ireland to defendant Cutter, letter dated March 27, 1937, which bears the stamp "Council on Medical Education and Hospitals." This is Exhibit No. 295:

U. S. EXHIBIT 295

"My dear Cutter:

"The facts below just came to my knowledge and I am going to drop them on your desk. It may be old stuff to you people around headquarters

"The early part of the week a couple of men from the Home Owners' Loan Corporation (H. O. L. C.) visited the Surgeon General of the Army to say that they wanted to obtain the services of a doctor to look out for the health of their personnel, which incidentally is quite large. After the consultation, the Surgeon General asked Colonel Glenn Jones, a retired medical officer, to visit these people. After this visit which lasted for a period of two or three hours, Jones telephoned to the Surgeon General to the effect that this was nothing but an entering wedge to the establishment of state medicine and so far as he could make out the Twentieth Century Finance Corporation of New York City was going to pay the expenses of this so-called medical care for the personnel of the H. O. L. C. Needless to say, Jones and the Surgeon General are dropping it like a hot cake.

"Just treat this information as though it blew in your window as I don't want to be the person to embarrass the Surgeon General if there should be any embarrassment. Some of the prominent doctors in Washington are going to be wised up.

"With best wishes,

"Faithfully yours,
M. W. Ireland."

And a postscript,

"Reynolds has it in the back of his head that maybe the two chaps from the H. O. L. C. thought they were in Parran's office when they were talking to him."

And on the bottom of this letter is this notation in pencil:

"Copy sent to Dr. Woodward and Dr. Leland 3-31-37."

Exhibit 236, which is a carbon copy of an original letter from the defendant Cutter to Dr. Daniel H. Kress, the Medical Director of Washington Sanitarium and Hospital, Takoma Park, Md., dated July 27, 1937:

U. S. EXHIBIT 236

"Dear Doctor Kress:

"The enclosure is a copy of Dr. C. H. Peterson's notes on the present status of intern training at Washington Sanitarium and Hospital, which should be considered in conjunction with previous inspection reports which have been submitted to your institution.

"Your particular attention and that of other members of your staff is called to the recommendations enumerated at the end of the statement. It would be a matter of interest to this office to learn whether you consider these recommendations acceptable and the possibility for their adoption in your educational program. Such a statement would be useful to the Council when it meets in October in order to determine whether internship approval should be continued or not.

"May we also call your attention to a recent resolution adopted by the House of Delegates of the American Medical Association, the language of which is as follows:

"*Resolved*, That it is the opinion of the House of Delegates of the American Medical Association that physicians on the staffs of hospitals approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local county medical societies and that the House of Delegates requests the Council on Medical Education and Hospitals to take this under advisement."

"Analysis of the staff is included in the report. What possibility, if any, exists for the observance of this recommendation at Washington Sanitarium and Hospital?

"Very truly yours,"

Exhibit 235, which is an original letter from Dr. Kress, the Medical Director of the Washington Sanitarium and Hospital, back to Dr. Cutter, dated Sept. 28, 1937:

U. S. EXHIBIT 235

"Dear Dr. Cutter:

"The copy of the report of Dr. C. M. Peterson's inspection of the Washington Sanitarium and Hospital has been very carefully gone over by the Staff of this institution. A committee was appointed to consider in detail the recommendations made in the summary of the report and the following plans have been worked out:

"1. In order to provide for more careful supervision of the record work of interns it was decided

(a) that daily the Record Librarian shall check the previous day's admissions for the recording of working impressions and report all delinquencies to the Medical Director to whom each physician shall be directly responsible.

(b) that the following regulation of the Board of Trustees of this institution shall be rigidly adhered to: 'If outside attending physicians do not furnish the complete history of their cases within 48 hours after admission, the intern shall be asked to secure same and to make routine physical examinations—this not to include pelvic examinations.'

(c) that hospital follow-up and instruction in differential diagnosis as it refers to the recorded working impressions shall be a part of the teaching program of each physician to whose service the intern is assigned.

"2 and 3. In order to provide for better instruction in clinical and tissue pathology it was decided and has been arranged that there shall be weekly a clinical pathological conference conducted by Col. J. E. Ash, the pathologist, on Sunday morning from 11:30 to 12:00 o'clock, that the interns shall be required to be present at these conferences and the immediate staff shall be expected to attend.

"4. In order to comply better with the recommendation regarding the definite assignments as listed on the report our rotating schedule creates the following:

a. Surgery—16 weeks, 10 days.

b. Medicine, Pediatrics—12 weeks, 10 days.

c. Obstetrics, Gynecology—4 weeks.

d. Night Duty (Obstetrics, Gynecology, Medicine, Pediatrics, Emergency Surgery) and Clinic—16 weeks, 10 days.

"In regard to the resolution of the House of Delegates of the A. M. A. concerning the limiting of physicians on the staffs of hospitals approved for intern training to members in good standing of their local county medical societies, we would say that each application for staff appointment, which is form 561 of the Physicians' Record Company, calls for the medical societies to which the applicant belongs. Would this meet the requirement of the resolution? I believe that a satisfactory staff analysis could be made from our staff appointment file, for the average physician is quite careful in filling in the information desired on the application. Any recommendation or suggestion in regard to this will be greatly appreciated.

"Sincerely yours,

"D. H. Kress, M.D."

Exhibit 231, which I shall read, is a carbon copy of an original letter from the defendant Cutter back to Dr. Kress, dated Oct. 5, 1937:

U. S. EXHIBIT 231

"Dear Doctor Kress:

"We appreciate having your letter of September 28 which supplements Dr. Peterson's report on Washington Sanitarium Hospital. It is a matter of satisfaction to learn that his suggestions have been found acceptable and certain changes have been made in keeping therewith.

"As far as the resolution of the House of Delegates is concerned, the intention remains that of hospitals' stipulating membership in the county medical society as the basis for the assignment of hospital privileges. The great majority of hospitals with whom we have corresponded on this point have agreed that this is a good basis on which to operate and, in fact, many have anticipated this recommendation by a considerable length of time.

"Very truly yours,"

I shall now read a carbon copy of an original letter (Exhibit 237) from the defendant Cutter to Sister Mary Rodriguez, Registered Nurse, Superintendent of the Georgetown University Hospital, Washington, D. C., dated Aug. 7, 1937:

U. S. EXHIBIT 237

"My dear Sister:

"The enclosure is a copy of Dr. C. M. Peterson's notes on the present status of intern training at Georgetown University Hospital together with comments relating to the application for approval of residencies in surgery. Will you be good enough to submit this statement to officers of the staff who are responsible for the maintenance of the educational services for house officers?

"A number of recommendations are incorporated at the end of the report. It is a matter of interest to this office to learn whether in your opinion these suggestions can be adopted. In consequence, any supplementary information which you care to submit will be appreciated.

"In respect to the residency in surgery, your attention is called to the components which need further attention before full approval can be assigned.

"May we also call attention to a recent resolution adopted by the House of Delegates of the American Medical Association, which is as follows:

"*Resolved*, That it is the opinion of the House of Delegates of the American Medical Association that physicians on the staffs of hospitals approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local county medical societies and that the House of Delegates requests the Council on Medical Education and Hospitals to take this under advisement."

"Analysis of the staff is included in the report. What possibility, if any, exists for the observance of this recommendation at Georgetown University Hospital?

"Very truly yours,"

Exhibit 238, which is an original letter from Sister Rodriguez, the Superintendent of Georgetown University Hospital, back to the defendant Cutter, dated Oct. 18, 1937:

U. S. EXHIBIT 238

"My dear Dr. Cutter:

"Your letter of August 7th, together with Dr. Peterson's notes on the present status of intern training in the Georgetown University Hospital, have been presented at the October meeting of the Executive Staff. It gives me pleasure to report as follows:

"All members to the Executive Staffs are nominated and elected annually. The Executive Staff ruled at its last meeting that no physician shall be nominated or elected to any Staff of the hospital unless he is a member of his local Medical Society or the American Medical Association. Members who are already on the Staffs, specified by you as not meeting these requirements, will be notified to qualify within the year.

"I. John R. Cavanagh, B.S., M.D., Associate Clinical Professor of Medicine, was appointed Medical Director of the Dispensary on Sep-

tember 1st, with Frank S. Horvath, M.D., Associate Clinical Professor of Medicine, as Assistant. Dr. Cavanagh has made the following assignments:

- (a) The intern on Medicine I shall be in the clinic on Mondays, Wednesdays, and Fridays for the duration of the clinic period.
 - (b) The intern on Medicine II shall be in the clinic on Tuesdays, Thursdays, and Saturdays for the duration of the clinical period.
 - (c) The surgical intern shall be in the surgical clinic for the duration of the clinical period.
 - (d) The Medical Resident shall be in the clinic at least one day a week, so that he may follow up cases discharged from the hospital.
- "II. The Intern Committee is holding regular meetings and checking the record work of the interns. Residents are assigned one day each week to conduct record conferences with the interns, these conferences to be supervised by the chiefs of the respective departments."

Now, there is a great deal more to that letter, but it does not relate to this case, and I want to know if you care to have it read.

Mr. Leahy:—We should like to have it read.

Mr. Kelleher:—You want it read?

Mr. Leahy:—Yes.

Mr. Levin:—All right:

"III. Vincent J. Dardinski, A.B., M.A., M.D., Ph.D., was appointed full time clinical pathologist and Director of Clinical Pathological Laboratories on September 1st. He is directly in charge of the educational program of the interns. With the assistance of the Professor of Medicine he is holding regularly conducted clinical pathological conferences with the interns each week. We feel that this procedure has already stimulated a greater interest in autopsies and pathological work; besides this the chiefs are holding conferences with the interns three times a week.

"IV. A library has been installed in the interns' suite and is now being equipped with approximately two to five hundred books and current medical journals to be furnished by the Georgetown University School of Medicine. A Journal Club is also being organized and in addition to this the interns have access to the Georgetown University Medical School library from 9 a.m. to 9 p.m., daily. Moreover the interns have available the libraries of the Director of Clinical Pathological Laboratories, and of the Professor of Medicine and of the Professor of Radiology.

"V. (a) The Intern Committee is functioning with renewed activity and since receiving your letter an additional intern has been appointed. It is the plan of the Committee to further increase the Intern Staff as soon as possible.

(b) The additional intern referred to in the preceding paragraph has been assigned to the surgical service; relieving much of the conflict between operating room work and ward rounds. A system of weekly surgical grand rounds is now being instituted.

(c) Arrangements have been made to have physical examinations and chest films done on all interns, including the present group, at the beginning and expiration of their term of service.

(d) Besides the regularly conducted clinical pathological conferences each intern is assigned for a definite period to laboratory work, and instruction is under the supervision of Vincent J. Dardinski, A.B., M.A., M.D., Ph.D., clinical pathologist.

(e) Each intern is now required to submit in writing to the Interns' Committee a detailed by-monthly report of all his services.

(f) Dr. Dardinski (who is in charge of the educational program) has instructed the residents to organize an Interns' Club with the idea of arranging a schedule of speakers and subjects to be presented at regular meetings.

"VI. It is the idea of the Executive Staff, to fully cooperate with all the suggestions made in your report. We fully appreciate the comments which you have so kindly made and are pleased to state that most of them are already in operation.

"Gynecology is conducted in this hospital as a major department under the direction of Professor Leon A. Martel who is certified by the American Board of Obstetrics and Gynecology. There are also two associates; one of whom is certified by The American Board of Obstetrics and Gynecology, and six assistants all of whom are especially qualified in this work. I note that this was not included in Dr. Peterson's report to you.

"Very sincerely yours,

"Sister Mary Rodriguez

"Superintendent."

Exhibit 239, which is a carbon copy of a letter from the defendant Cutter to Sister Margaret, Registered Nurse, Superintendent of Providence Hospital, dated Aug. 21, 1937:

U. S. EXHIBIT 239

"My dear Sister:

"The enclosure is a copy of Dr. C. M. Peterson's notes and recommendations referring to the opportunities available for interns at the Providence Hospital. Please refer this statement to the officers of the staff and members of the executive committee.

"You will recognize that there are several factors that are not in conformity with the Council's regulations governing internship approval. It is a matter of great interest to this office, therefore, to learn whether the recommendations enumerated at the end of the report are acceptable or not. As matters stand now, we believe quite likely that when this statement is submitted to the Council at its regular meeting early in November, internship approval will be withdrawn. Similarly, the application for approval of a residency in surgery is held in abeyance pending adjustment of the present situation.

"We also append for your interest a recent resolution of the House of Delegates of the American Medical Association:"

And then comes the resolution, the Mundt resolution, that has been read before.

"According to our analysis, there are six members of your staff who are not affiliated with any of the constituent societies of the American Medical Association.

"Very truly yours,"

Exhibit 240, which is an original letter from Sister Rosa, the Acting Superintendent of Providence Hospital, back to the defendant William D. Cutter, dated Aug. 27, 1937:

U. S. EXHIBIT 240

"Dear Sir:

"No words can express my distress at the possibility of losing the American Medical Association's approbation of our Intern Training School. As requested, I presented the copy of Dr. Peterson's notes and recommendations to our Staff President, Dr. J. J. Mundell, and the matter will be discussed in detail at a special meeting of the Chiefs of our various Services, to be called next Tuesday.

"I assure you, the recommendations at the end of the Report are acceptable and will be given major consideration. In fact, many points brought into relief during Dr. Peterson's visit last June have been cared for satisfactorily. This is particularly true with regard to the patients' Records which have improved noticeably since July first.

"You will receive, very shortly, notification from our Staff concerning their desire and intention to co-operate wholeheartedly in placing our Internship on a platform that will meet the requirements of the American Medical Association. Nothing will be omitted either by the Staff, the Hospital, or the Superintendent to prevent what would prove a dire catastrophe to Providence Hospital, the loss of its accreditation for Intern Training.

"I trust that when the Association will receive assurance concerning the adjustment of all that is considered inefficient by Dr. Peterson, the approval of a residency in surgery will be granted.

"Lest any discrepancy should occur, please communicate with me freely on the subject of our standing, that proper reformatory measures may be put immediately into execution. Our desire is to give 100 per cent co-operation to the demands of the Association, and I trust that if some of these readjustments take a little time for development, the Association will bear patiently with the unforeseen delay.

"Sincerely yours,

"Sister Rosa

"Acting Superintendent."

Exhibit 230, which is a carbon copy of a letter from the defendant Cutter back to Sister Rosa, dated Sept. 9, 1937:

U. S. EXHIBIT 230

"My dear Sister:

"We acknowledge with thanks your letter of August 27 which expresses in convincing terms your desire to cooperate with this Council in improving intern training at Providence Hospital according to suggestions recently submitted by Dr. C. M. Peterson.

"It will be a matter of great interest to receive the communication from the staff which you mention in your letter.

Exhibit 241, which is a letter from Sister Rosa, the Acting Superintendent, and Dr. Claude C. Caylor, the Secretary, of Providence Hospital, to the defendant William D. Cutter, dated Oct. 12, 1937:

U. S. EXHIBIT 241

"Dear Doctor Cutter:

"We have had several meetings of the Executive Staff of Providence Hospital for the purpose of considering the recommendations in Dr. C. M. Peterson's report of his inspection of our Hospital on June 15, 1937.

"The membership was furnished with copies of this report prior to the meetings in order that each might familiarize himself with its contents.

"The staff agreed that the report was well founded, and unanimously agreed to meet the suggestions of the Council; Committees were appointed for the purpose of planning suitable regulations for interns and in order to obtain more efficient records. These Committees have submitted comprehensive reports.

"In accordance with the recommendations which begin on page 8 of Dr. Peterson's report, the staff has acted as follows:—"

Now I will ask you whether you care to read the whole letter or whether I can read those portions that are relevant to that inquiry.

Mr. Leahy:—No. Read the whole letter, because you emphasize Sister Margaret's letter so much. Perhaps the jury would like to know what it was that she was referring to.

Mr. Levin:—I can't believe they will be interested in this, but maybe they will:

"1. An intern committee has been appointed, the duties of which shall be solely the appointment and supervision of interns. With respect to the physical examination of interns, the staff has voted that appointees be given a physical examination immediately after their acceptance of their appointments, and in addition, that a roentgenological examination be made of their chests immediately before entrance upon their term as interns. There is now being prepared a regular form for recording the detailed work of each intern, which records are to be regularly reviewed by the resident and the intern committee. Meetings of the entire resident staff and the intern committee are to be held twice monthly, and the first of these meetings has

already been held. The Hospital is now attempting to secure an additional intern in order that the services may be so arranged that the entire morning of one intern may be spent with the pathologists in clinical laboratory and histopathological procedures. For the time being, the obstetrical and x-ray services have been combined under one intern. A combined clinical and journal club has been formed. This club is to meet twice monthly and one or more members of the staff are to be invited for the purpose of discussion and instruction. A clinical pathological conference in conjunction with the medical or surgical service is to be held weekly.

"2. The Staff was much chagrined at the first sentence in Dr. Peterson's second recommendation, although it realized the truth of the statement. It was the unanimous opinion of the Staff, that the records form the only index of the work done by the attending, resident and nursing staff, and steps have been taken to provide records that will indicate every step made in arriving at a diagnosis, and the treatment of each patient. A Medical Director, Dr. Valentine M. Hess, has been appointed, who will have supervision generally over the medical conduct of the hospital and of the hospital records. Rules have been drawn providing for physical examination and history taking on all cases within twenty-four hours after admission, in ordinary cases, and in a shorter time in emergency cases. These histories must be inspected by the attending physicians and surgeons who shall make such corrections as they deem necessary. Tentative diagnoses by the interns must be made immediately upon completion of the physical examination and laboratory work, which diagnosis must be confirmed or corrected by the attending physician or surgeon. Progress notes will be made as frequently as the nature of the case requires and will be signed by the responsible individual. Written résumé of consultations will be made and signed by the consultant. X-ray and clinical laboratory records will be duplicates of the bed-side records and the respective laboratories will maintain alphabetical and pathological card indices. For some time past, medical departmental conferences have been held and these conferences will be expanded to include the various hospital services. A Medical Historian has been secured who is experienced, competent and qualified, and whose sole duties are the writing of dictated histories and other chart records before the records are submitted to the record room.

"3. We have found that despite the concerted and tactful attempts on the part of the staff and interns, that the securing of autopsies is extremely difficult. A form has been incorporated in the hospital record for autopsy information. This form will be present in the records of all deceased patients, and if permission for autopsy was not obtained, the reason therefore shall be stated. With reference to coroner's autopsies, it is the policy in the District of Columbia to exclude all except officials from autopsies resulting from murder or other legally culpable deaths. In all other autopsies interns are welcome and may make such records as are necessary to secure a full autopsy report. Our interns will be instructed to attend autopsies of patients on their services when such autopsies are conducted by the coroner or his assistants.

"4. The Medical Library will be improved jointly by the Hospital and Staff, by the securing of recent textbooks and current good medical journals.

"Members of the Staff who did not belong to the Medical Society of the District of Columbia have been contacted and at the present time, all non-members have submitted their applications for membership, so that now, with those exceptions, all members of our Staff are members of the American Medical Association or affiliated with its constituent societies.

"We feel that we have complied with the requirements set forth in Dr. Peterson's report. However, our Medical Director, Dr. Hess will be in Chicago the latter part of this month to attend the meeting of the American College of Surgeons. He would like to call upon you and confer with you regarding what we have done in these matters. If you will be kind enough to let us know when it will be most convenient for you to see him, we are sure that he will arrange his schedule accordingly.

"Yours very truly,
"Sister Rosa
Acting Superintendent
"Claude C. Caylor, M.D.,
Secretary."

Mr. Lewin:—Exhibit 242 is a carbon copy of a letter of the defendant Cutter to Dr. Walter A. Bloedorn, the medical director of George Washington University Hospital, Washington, D. C., Aug. 23, 1937:

U. S. EXHIBIT 242

"Dear Doctor Bloedorn:

"The enclosure is a copy of Dr. C. M. Peterson's report on the present status of intern training at George Washington University Hospital. We should like to have you refer this statement to those of your staff who are interested in and responsible for the internship program.

"On the whole, statements are quite commendatory. However, a number of suggestions are incorporated at the end of the report, and it would be a matter of interest to this office to learn whether these suggestions are acceptable or not. They represent developments which, in our experience, have proved to be of real value elsewhere.

"May we also call attention to a recent resolution adopted by the House of Delegates of the American Medical Association, the language of which is as follows:

"Resolved, That it is the opinion of the House of Delegates of the American Medical Association that physicians on the staffs of hospitals approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local

county medical societies and that the House of Delegates requests the Council on Medical Education and Hospitals to take this under advisement.

"Analysis of the staff is included in the report. What possibility, if any, exists for the observance of this recommendation at George Washington University Hospital?

"Very truly yours,"

Mr. Lewin:—Exhibit 215 is another letter from the defendant Cutter to Dr. Bloedorn of George Washington University Hospital, dated Oct. 28, 1937:

U. S. EXHIBIT 215

"Dear Doctor Bloedorn:

"May we call to your attention our letter of August 23 which accompanied a copy of Dr. C. M. Peterson's report with suggestions on internships at George Washington University Hospital.

"Can you tell us at the present time whether his suggestions have been incorporated in your internship program?

"Has any action been taken in respect to the resolution of the House of Delegates on the subject of staff membership contained in our letter of August 23?

"Very truly yours,
"William D. Cutter."

Exhibit 243 is an original letter from Dr. Bloedorn, the medical director of George Washington University Hospital here in Washington, back to the defendant Cutter, dated Nov. 4, 1937:

U. S. EXHIBIT 243

"Dear Dr. Cutter:

"Thank you very much for forwarding us a copy of Dr. C. M. Peterson's report on the George Washington University Hospital.

"I am very glad indeed to have his suggestions which, of course, are of real value.

"A Staff Intern Committee has been organized to exercise supervision over the house officers' training. The suggestion of the Journal Club for the house staff has been transmitted to the Intern Committee and arrangements will be made for convenient access to the University Medical Library next door.

"With respect to the resolution of the House of Delegates on the subject of staff membership, we find that only nine members of the total staff are not members of the local Medical Society and that of these nine, six are full time members of the Staff of St. Elizabeths Hospital in the Department of Psychiatry. As we do not have a psychiatric department in the George Washington University Hospital these members are used primarily in a teaching capacity for our medical students who go to St. Elizabeths Hospital, which as you know, is a Psychiatric institution. The problem then is reduced to three members of the clinical staff and I feel that this number will be reduced very shortly.

"Very truly yours,
"W. A. Bloedorn, M.D.,
"Medical Director."

I shall now read Exhibit 223. It is a carbon copy of a letter from the defendant Cutter to Col. P. M. Ashburn, Medical Superintendent, Columbia Hospital for Women, Washington, D. C., Sept. 8, 1937:

U. S. EXHIBIT 223

"Dear Colonel Ashburn:

"The enclosure is a copy of Dr. C. M. Peterson's notes on the present status of your educational service for residents in obstetrics-gynecology. Will you be good enough to transmit this statement to other members of the intern committee and the chiefs of service who are primarily responsible for the quality of experience which your house officers receive.

"A number of recommendations have been attached to the report which, in our experience, have contributed to improving educational standards elsewhere. It is a matter of genuine interest therefore for this office to learn whether these suggestions are acceptable or not, preferably in advance of the next meeting of the Council which will occur early in November. We judge from certain remarks in the report that remedial measures have already been instituted, especially in relation to the record system.

"May we also take this occasion to call your attention to the following resolution:

"Resolved, That it is the opinion of the House of Delegates of the American Medical Association that physicians on the staffs of hospital-approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local county medical societies and that the House of Delegates requests the Council on Medical Education and Hospitals to take this under advisement.

"What possibility, if any, exists for observance of this principle in your hospital?

"Very truly yours,"

Exhibit 227 is another letter from Dr. Cutter to Colonel Ashburn, Superintendent of Columbia Hospital for Women, here in Washington, dated Nov. 3, 1937:

U. S. EXHIBIT 227

"Dear Colonel Ashburn:

"In continuation of our previous correspondence, are you in position to report any action taken by your Board on the subjects covered in Dr. C. M. Peterson's report, especially the suggestions attached thereto?"

"This present inquiry also extends to the resolution which was quoted in our letter of September 8 relating to county society membership as a basis for hospital privileges.

"Very truly yours,"

Exhibit 228 is an original letter from Colonel Ashburn, the Superintendent of Columbia Hospital for Women, here in Washington, back to the defendant Cutter, dated Nov. 5, 1937:

U. S. EXHIBIT 228

"My dear Dr. Cutter:

"Referring to your letter of November 3rd, 1937, I am glad to reply that Dr. Peterson's report of inspection of this hospital and the Medical Board's action and recommendation in regard thereto were submitted to the Executive Committee of the Board of Directors at its recent meeting, and both were accepted. The Committee agreed with the Medical Board in promising to put into effect the recommendations as it becomes possible, except that, in view of the hospital's financial condition and the exceptional medical library facilities in Washington, it did not wish to promise to improve the medical library of the hospital to any great extent.

"As for demand that 'physicians on the staffs of hospitals approved for intern training should be limited to members in good standing in their local county medical societies,' it meets with the approval of the Medical Board as regards future appointments. So far as known, all present members of the staff of this hospital, except one, are members of the District Medical Society. The exception is a man of long service at the hospital and of high standing in the profession. His reasons for not belonging to the Society are probably personal and nobody on the Medical Board suggested that any action be taken in his case.

"Very sincerely yours,

"P. M. Ashburn, M.D.,
"Superintendent."

The last letter I shall read at this time is Exhibit 229, which is a carbon copy of a letter from the defendant Cutter back to Colonel Ashburn of the Columbia Hospital for Women, here in Washington, dated Nov. 15, 1937:

U. S. EXHIBIT 229

"Dear Colonel Ashburn:

"Thank you very much for your letter of November 5. This completes our records as far as the recent inspection report is concerned. We shall be glad to turn over the complete file to the Council with favorable recommendations for continued approval of residencies in obstetrics-gynecology.

"Very truly yours,
"William D. Cutter."

I should now like to read to the jury from the minutes of the District Medical Society:

"Minutes of the special meeting of the executive committee of the Medical Society of the District of Columbia, held Tuesday evening, June 1, 1937, 8 P. M.

"Dr. J. Lawn Thompson, Chairman, presiding.

"Present: Drs. C. N. Chipman, A. J. Connelly, David Davis, William T. Gill, Jr., William P. Herbst, Raymond T. Holden, Jr., R. Arthur Hooe, H. C. Macatee, F. X. McGovern, Thomas E. Neill, H. H. Schoenfeld, William M. Sprigg, Earl R. Templeton, C. B. Conklin; and Dr. J. R. Verbycke Jr. and Colonel Glenn I. Jones, by invitation.

"The Chairman, in addressing the meeting, said that the reason for calling the special meeting was on account of certain serious situations that had developed. The Home Owners Loan Corporation, the Veterans' Bureau, the Soil Conservation Department and the Reconstruction Finance Corporation had already undertaken the development of a plan for medical care of their employees."

(Here came a discussion of the reading of the minutes and an agreement on omission of certain portions.)

Mr. Lewin:

"Dr. Thompson called on Dr. J. Russell Verbycke Jr., who had been very much interested in this subject.

"Dr. Verbycke said that he had heard of this plan and he had in his hand a prospectus, marked 'Confidential,' in which details had been very well worked out."

I am omitting the details here.

"He learned that they were opposed to the entire proposition of the prepayment plan.

"The Chairman, Dr. Thompson, stated that we should look to the future; these plans all threaten the coming generation of physicians and their income.

"Dr. H. C. Macatee was called upon by the chairman to state his views. He stated that some two Sundays ago he attended a meeting in Dr. William Gerry Morgan's office at which time consideration was given to this movement. He thought the medical profession had two weapons at hand, one, to forbid consultation with the physicians doing this type of work; the second, would be to withhold approval of any hospital that would take any cases or assist in the movement in any way.

"Dr. R. Arthur Hooe at this time was given the privilege of the floor."

Then, omitting:

"He said, 'Why has this all come about? Because people are not satisfied with what they are getting. Definitely and assuredly it is our fault.' He now made a motion to the effect that there would be a special meeting of the Society called for the coming Friday evening, at which

time the membership would be informed of just what was taking place and they would be asked what they wanted to do in the premises. The motion was seconded."

Then, I omit some discussion.

"Dr. Hooe interrupted to state—"

Mr. Lewin:

"The Secretary stated that Dr. H. R. Brown had called him up, stating that he was going to be out of town for ten days attending a medical meeting. When he returned he would be at the service of the committee. He also stated that another doctor interested in the movement would be available. It was said that Dr. Brown certainly should be invited to a meeting and that information should be obtained."

Now, I will read from "Confidential: For Private Circulation only."

Mr. Lewin:

"A Plan for a Cooperative Medical Service on a Periodic Payment Basis for Federal Employees and their Families in Washington.

"Foreword.

"The problem of medical care and costs has become a serious one. A large proportion of our population does not obtain adequate medical care. . . .

"Hospitalization insurance, of which several types exist in Washington constitute a partial solution of this problem. Thereby, people are enabled to provide in advance against the cost of hospitalization, and by so doing, many of low incomes who might otherwise have to ask for charity, are enabled to obtain hospital care, when they need it, in a self-respecting manner. But this insurance is incomplete for it does not cover physicians', surgeons', and nurses' services and other items of importance in the medical bill. Some arrangement obviously is needed whereby individuals and families may pay a certain fixed charge monthly or annually, and receive in return medical care of whatever type and amount they require.

"Proposed in the following pages is a plan by which the community of Federal Employees and their dependents in Washington may solve this problem—if not completely, at least to the fullest extent possible by voluntary effort. The plan is tentative in nature. It is submitted to serve as a basis for discussion for individuals who may wish to constitute themselves a group to agree upon a particular plan and to take the steps necessary to establish it.

"The aim of this plan,—"

Mr. Magee (interposing):—Are you going to leave out the footnotes?

Mr. Kelleher:—Yes.

Mr. Magee:—I was just asking.

Mr. Kelleher:

"The aim of this plan is to make available to Federal Employees in Washington, and to their families, adequate medical care, both preventive and curative; to provide this care at moderate cost; and to place that cost on a regular budgetable basis within the means of the group to be served. If federal employees are typical of the general population with equivalent incomes, many do not now obtain adequate medical care, especially preventive service and care in chronic conditions, while many others incur disasters each year because of sickness costs. The provision of better care should promote health and well-being and reduce time lost from work because of illness. The plan should be of benefit not only to the employees and their families, but also to the Government they serve."

Mr. Kelleher:—And then I will omit a large portion of it which is intended to outline the "need."

"SCOPE OF THE PLAN

"It is well to emphasize at the outset that the plan here proposed is potentially one of considerable magnitude. There are 119,000 federal employees in Washington. Should 30 per cent avail themselves of the plan, the population served, including dependents, would probably number over 70,000 people. To provide care to this group would require the full-time services of 80 physicians. At a cost of \$25 per person, the annual budget of this enterprise would amount to \$1,750,000."

Mr. Kelleher:—I am going to omit a paragraph here.

"It is estimated that approximately two-thirds of all families of federal employees in Washington have incomes between \$1,500 and \$4,500. The proposed plan, while it would be open to all, is designed primarily for families in this income range and for single employees with incomes over \$1,200

"BENEFITS AND COSTS.

"The level of costs in such a plan as is here proposed must be geared to what the group in question is accustomed to spend.

"Various surveys show that families of the income range in question spend four to five per cent of income, on the average, for medical care. In other words, averaging the years of low cost with the years of high cost, a family with a yearly income of \$1,500 will spend approximately \$67 a year for medical care; a family with an income of \$2,000 will spend approximately \$90 a year; one with an income of \$3,000 will spend approximately \$135. Most federal employees, like most of the general population, do not now receive fully adequate care, preventive and curative. The aim should be not to reduce present expenditures, but to

regularize them and to provide for these expenditures a distinctly better level of medical care than they now purchase. The charges under the proposed plan have been drawn up with these considerations in mind."

Mr. Kelleher:—Now, I am going to omit for the sake of speed a lot of detail about those figures.

"If a representative population enrolls, the amount available for provision of medical care at the specified rates, will be approximately \$25 per person a year. This is more than is available under similar plans elsewhere giving a service of comparable items."

Mr. Kelleher:—And references are made in the appendix to those other plans.

"and should be sufficient to provide an excellent quality of service. The rates proposed will make possible salaries to physicians ranging from \$3,000 per year for the younger men up to \$12,000 for the chief of medical staff. Those salaries will be sufficient to attract and hold first-rate men. The rates are set so as to provide a safe margin of income over outgo, bearing in mind the facts that in all plans of this sort, the expenses are greater during the first few years than afterward, and that it is desirable to accumulate a small reserve to take care of any unusual demands for medical services such as might be caused by an epidemic. After the first three or four years, it should be possible to lower the rates or to expand the services.

"The plan should be cooperative in character, i. e., not for profit. It should be incorporated. A suitable name might be: Federal Employees Cooperative Medical Service, Inc. The organization should be controlled by a board of trustees, the members of which serve without pay. At the beginning, the trustees will be the members of the committee which sponsors the plan and sets it in operation. Once the plan has been firmly established, the Trustees should be elected by the subscribers. Provision should be made for an advisory council representing the medical staff, and for another advisory committee representing the general medical profession of the District.

"The executive head of the organization preferably should be a physician. His function would be to direct the organization as a whole and to serve as chief of medical staff. He would require the assistance of a lay manager who would run the business side of the enterprise. A physician who headed up the organization would need to be primarily an experienced and capable administrator, and a leader capable of inspiring, and supervising the physicians on his staff. Physicians with the proper administrative experience are rare, and the right man will be difficult to find. If the right man cannot be found, the executive head of the organization may properly be a layman, in which case it would be necessary to have a separate chief of medical staff who should, of course, be a physician, and completely responsible for professional procedures and personnel."

Mr. Kelleher:—I will omit some more of that detail and go on to this:

"To provide adequate care it is necessary to have one physician for every 800 to 900 enrolled persons. The smallest number of enrolled persons capable of supporting a well-rounded medical group is approximately 10,000. The medical staff in this case would be composed of, say, 10 physicians on full time and of a number of others (equivalent to 2 full-time men) engaged on a part-time or fee basis. As the number of subscribers increases, it will be possible to add full-time men in the less common specialties, and additional physicians in the more common specialties so that subscribers will have a choice among several men in each important field.

"The pros and cons of provision of service by a staff of salaried physicians have been carefully considered. The disadvantage of salaried service is that it does not permit the patient to go to any physician he may select, but limits his choice to the physicians who are members of the staff. It is believed that this disadvantage is at a minimum in the case of the population of federal employees, since many, being newcomers to the city, have not affiliations of long standing with physicians. In any case, the disadvantage is more apparent than real. Actually, the average layman generally chooses his physician on the basis of hearsay and is not qualified to judge competence. With a salaried staff, the patient receives care from a selected group of physicians, chosen by a chief of staff on the basis of their professional qualifications and competence. Furthermore, only in salaried, group practice, is it possible to have a desirable degree of professional supervision of service and ready consultation of one physician with another. Finally, only on this basis can the economies flowing from organization be achieved.

"The type of practice visualized here should be very attractive professionally to the physicians participating. It means a greater degree of cooperation and team-work among them than is usual in 'solo' practice. They will have readily at their disposal, the aids such as X rays and laboratory, necessary for the proper practice of medicine. They will be able to give their patients service of the type and extent required to achieve an optimum result, irrespective of the financial resources of the patient. The members of the staff will have annual vacation and will be able to get away for postgraduate study. At the salaries proposed, there will be no difficulty in obtaining a staff of absolutely first-rate physicians."

Mr. Kelleher:—Then comes a great many figures.

"To establish the plan the following steps will be necessary:

"(1) A small committee of individuals who are agreed on the necessity and soundness of the plan, and who will undertake to put it into operation, must be formed. These individuals must be willing and able to give considerable time to the purposes in hand.

"(2) A sponsoring committee of 50 or 60 individuals should be formed. These individuals should be of two types: (a) individuals of prestige and standing in the Government Service and (b) individuals who by virtue

of positions as heads of employee organizations or associations are able to lead and influence federal employees.

"(3) A certain sum of money to give initial working capital must be raised either by gifts or loans from a small number of people. The sum must be sufficient to set up an office, pay salaries and defray printing and office expenses during the interval between the launching of the plan and the collection of enrollment fees.

"(4) The plan should be launched and publicly announced at a dinner or other suitable meeting, at which representatives of the press should be in attendance. Immediately thereafter all federal employees should be informed of the plan through meetings and circulars, and should be asked whether they would be willing to participate.

"(5) If the response is favorable, a campaign will start to obtain the necessary capital through advance payment of enrollment fees or subscription to shares. When the required funds are in hand the medical director will be engaged and as soon as he can obtain his staff and make the necessary arrangements, the doors of the medical center will be opened, and the plan will commence to operate.

"It will, of course, be desirable to obtain the fullest possible measure of cooperation from the members of the medical profession in the District of Columbia. After the plan is launched, the Medical Society of the District of Columbia will be invited to appoint a representative to sit with the committee which undertakes to establish the plan. It will also be requested to appoint a committee of several physicians to advise the medical director of the plan on all relevant matters. The intention will be to solicit the advice and cooperation of the local medical society as to work with it to the fullest degree possible.

"The present plan will not supplant or injure the existing Group hospitalization plan. That plan is now serving only a fraction of those who need it. Some individuals will want the complete coverage afforded by the plan here set forth; others will want simply the coverage afforded by Group hospitalization. The city is large enough for both plans, and in the long run, each will aid the other."

Mr. Kelleher:—Then follow a number of appendices containing figures, most of them gathered by the committee on medical care, concerning which we have had testimony. I will not read those appendices.

I shall now read from the minutes of the special meeting of the executive committee of the Medical Society of the District of Columbia, held Monday evening, June 21, 1937, 8 p. m.:

"Dr. William M. Sprigg presiding,

"Present: Drs. Daniel L. Borden, C. N. Chipman, A. J. B. Connolly, William T. Gill Jr., A. C. Gray, William P. Herbst Jr., Raymond T. Holden Jr., R. Arthur Hooe, Joseph Horgan, Oscar B. Hunter, H. C. Macatee, Thomas E. Neill, Sterling Ruffin, William M. Sprigg, Earl R. Templeton, J. Lawn Thompson, C. B. Conklio, and Dr. J. Russell Verbruyke Jr., by invitation."

Mr. Kelleher:—I am omitting the first three paragraphs.

Mr. Magee:—Will you read the paragraph concerning the absence of the chairman and the vice chairman?

Mr. Kelleher:—You may read it.

"In the absence of the chairman and the vice-chairman the secretary announced that the first order of business would be the nomination of a temporary chairman to serve until the chairman appeared.

"Upon motion, duly seconded and adopted, Dr. William M. Sprigg was made temporary chairman."

Mr. Kelleher:—And then omit the following paragraph:

"Dr. Verbruyke at this point read a detailed plan that had been organized by the Subcommittee as an acceptable substitute for the Cooperative Medical Service Plan.

"Dr. Verbruyke stated that he had sent by air mail an outline of the Cooperative Medical Service Plan to Dr. W. C. Woodward and requested that Dr. Woodward meet with him in Washington. Every effort was made by Dr. Woodward to ascertain who was financing the project. He met with little success with his inquiry. It was stated that Dr. H. C. Macatee, at the meeting of the House of Delegates, in Atlantic City, outlined the plan that was all ready for trial in Washington. It seemed as though the attitude was 'we are sorry; we have no solution; you work it out.'"

Mr. Kelleher:—I think we may omit what follows:

"The chairman at this point addressed the meeting. He called attention to the fact that he had one son who had just completed his medical course; another son was just entering the medical school. This represented a tremendous personal investment, the usefulness of which he thought would be greatly curtailed by the installation of any such plan as Mr. Russell contemplated fostering on the medical profession in Washington."

Mr. Kelleher:—And I again omit:

"The secretary made a motion that a special meeting of the executive committee be held on the evening of Wednesday, June 23rd, and that Dr. Henry Rolf Brown be informed that his presence would be welcomed, also the presence of any of his conferees. This motion was seconded, and in the discretion the question of executive session on that evening was brought up."

Mr. Kelleher:—And I omit again:

"Dr. Macatee, in summary, stated that two ways available in combating or controlling any such scheme as recently proposed in Washington might probably be handled (1) through disciplining our own

members who undertook to participate, and (2) the possibility of doing something to recalcitrant hospitals through pressure on their staffs. He mentioned the various cooperative plans that were now in force."

The meeting was then adjourned.

I now read from

"Report of the Committee on Group Medical Service Plan," which is appended to the minutes:

"The inception of Cooperative Medical Service plans with a prepaid payment basis for federal employees and their families in Washington forces the Medical Society to take a definite stand either for or against. This decision must be made upon full consideration of various advantages and disadvantages of this service not to the doctor but to the patient since the medical profession has always stood foursquare for principles looking toward improvement of public health albeit at the expense of diminution of its own income. This unselfish attitude is well exemplified by the untiring efforts expended by the profession in furtherance of the prevention of disease and the concept that it is unethical to patent or use for private gain any new discovery for the alleviation of illness. Quite naturally, however, the organized profession is insisting upon not being forced by misguided or unfair competition to give up any of its rightful prerogatives."

Mr. Kelleher:—And I omit:

"The aim of the Cooperative Medical Service is to supply complete medical care, including professional care and hospitalization to all participants at a cost which all can afford through the distribution of such cost over large groups whereby those who are lucky enough not to need the benefits bear their part of the expense of caring for those who otherwise would be subjected to perhaps an unbearable or impossible burden which is imposed by the highly developed and the necessary expensive modern medicine."

Mr. Kelleher:—I omit the next paragraph.

"The profession of the District of Columbia has gone far toward the solution of the problem by its creation of the Medical-Dental Service Bureau, which permits the budgeting of all expenses incident to an illness after the blow has struck, but evidently it has not gone far enough or the need for some plan such as the Cooperative would not have been felt."

Mr. Kelleher:—I omit the next paragraph.

Mr. Leahy:—What paragraph are you on now?

Mr. Kelleher:—I am at page 2.

"The spread of costs with resultant benefit of adequate care to the hard-hit individual constitutes the one advantage of cooperative medical care and it is unquestionably a large one and worthy of deep consideration."

Mr. Kelleher:—I omit—

Mr. Leahy:—No, read on.

"On the other hand, possible disadvantages, some of which may be said to be even likely under the proposed set-up may be enumerated as follows:

"1. The absence of patient-personal physician relationship so necessary in many conditions.

"2. The inability of the patient to have free choice of physician.

"3. The danger of deterioration of service when competitive factors are removed through salaried personnel.

"4. The danger of relative incompetence of personnel through appointment by favoritism or otherwise rather than on a strictly merit basis.

"5. The inability of the patient to have always the best care for a certain condition if the specialist does not happen to belong to that group.

"6. The usurpation of the time and money of the group by some who think that they are ill or enjoy poor health constantly at the expense of some of the more needy.

"7. Actual statistics prove that group practice costs the individual patient more than private practice.

"8. The possibility that group support will be enthusiastic at the beginning but will wane in time with gradual failures.

"Much can be said for these disadvantages to offset in theory the advantage to the patient of the group plan.

"A review will now be made of the history of some of the similar plans which have already have had a thorough trial.

"For many years Quintas have been operating in Cuba, where for a moderate fee per month all diagnostic, dispensary, hospital and home medical and nursing care have been supplied with reputed satisfaction to both patients and the profession.

"The Union Health Center in New York City has rendered service, since 1913, to its members whose incomes are from \$600 to \$1200 with clinics even in such specialties as allergy, cardiography, et cetera, with apparently a high degree of success.

"There are some 150 group clinics throughout the country which supply prepaid medical care, but the outstanding example is the Ross-Loos Group of Los Angeles, and this organization is admittedly a success both from the standpoint of the patient and the staff.

"Trinity Hospital, in Little Rock, Arkansas, owned by a private group of physicians, gives medical service prepaid to an increasingly large clientele.

"County medical societies have within the past several years inaugurated their own prepaid medical service bureaus in several parts of Washington and Oregon with free choice of physicians. Varying results are recorded.

"In Fulton County, Georgia, 65 per cent of the County Medical Society have placed their names on the roster of their bureau. The

only reported difficulty has been tardiness in paying the professional fees necessitated by lack of capital in the beginning.

"In summary, it may be said that few of the prepaid medical setups have been without criticism but that many desirable features have been supplied and it is generally conceded that people of a class or group, who are unable to take care of themselves individually, have a right to band together if their aims can be accomplished collectively and provided contracts are entered into which are fair to all parties concerned.

"Before dissecting the setup of the proposed Cooperative Medical Service Plan for Federal Employees, it might be well to quote the section of the Principles of Medical Ethics of the American Medical Association which will show where the doctor fits into the picture:"

And the section is quoted as follows:

"Contract practice per se is not unethical. However, certain features or conditions if present make a contract unethical, among which are: 1. When there is solicitation of patients, directly or indirectly. 2. When there is underbidding to secure the contract. 3. When the compensation is inadequate to assure good medical service. 4. When there is interference with reasonable competition in a community. 5. When free choice of a physician is prevented. 6. When the conditions of employment make it impossible to render adequate service to the patients. 7. When the contract because of any of its provisions or practical results is contrary to sound public policy."

"It becomes evident that the plan proposed containing at least 4 of the objections raised by the American Medical Association, and, therefore, being stamped as unethical according to these standards, no member of the Medical Society can have a part in it as at present constituted, and still be a member of the Medical Society or of the American Medical Association.

"The proposal bespeaks the wish that the approval of the Medical Society be accorded and that it have an active part in an advisory capacity. It would not appear that the aims of the groups and the features objectionable to the Medical Society are too divergent to be reconciled.

"1. Under no condition can the Medical Society approve any plan which does not allow free choice of physicians so that it cannot approve of salaried fulltime personnel—Violation of conditions 4 and 5 of A. M. A.

"2. The proposal to set up a local medical center with cooperatively controlled hospital, etc., is unquestionably 'contrary to sound public policy.' Not only would members be denied hospitalization of their own choice but present community hospitals, which have done their part through trying times in taking care of the public, would be pushed to the wall and be reduced to charity institutions or have to entirely disband.

"3. The instructions for launching cooperative medical service groups contains the following significant paragraphs:

"It will of course be desirable to obtain the fullest possible measure of cooperation from the members of the medical profession in the District of Columbia. After the plan is launched, the Medical Society of the District will be invited to appoint a representative to sit with the committee which undertakes to establish the plan. It will also be requested to appoint a committee of several physicians to advise the medical director of the plan on all relevant matters. The intention will be to solicit the advice and cooperation of the local medical society and to work with it to the fullest degree possible."

"Now, the important thing for the Medical Society to insist upon, first and foremost, is that it not be consulted after the plan is launched, but that it be consulted first and have a part in drawing up the charter and by-laws to conform with necessary standards of ethics.

"In fact, we propose that the Medical Society go further than this and that it formulate at this time as nearly an ideal plan as is possible with the endeavor to avoid all the objectionable features.

"Briefly, our plan would contemplate a director, or board of several directors, from the Medical Society, who would serve as a central body to have supervision of the launching and future conduct of all cooperative groups to see that all ethical standards are complied with and to act as the final board of arbiters in all cases of dispute. This central board should be salaried and paid by assessments from the various cooperative groups.

"Groups of 10,000, taken as an arbitrary unit, can be organized more or less after the pattern advised by previous planners, except that the only salaried doctor shall be the medical director of the group who shall control all medical and business activities of the group and who shall act as an admitting officer and advise patients as to their general course of procedure, but who shall not himself administer treatment. Each group shall be self-governing and independent, subject only to the general rules of the central directors. Instead of salaried personnel for diagnosis and treatment the patient shall have free choice of physician from a panel of the medical society members, all of whom shall be eligible to register upon accepting the rules and regulations and a standard fee table, after adoption.

"Many details would have to be worked out in the matter of regulations, et cetera, and the above plan gives the basic set-up only.

"It is moved that the executive committee call a special meeting of the Society for the consideration of the question, with the recommendation that a committee proceed with details of a complete set-up which, after adoption by the Society, shall be publicized and submitted to all interested parties."

Mr. Leavin:

"Minutes of the special meeting of the executive committee of the Medical Society of the District of Columbia, held Thursday evening, June 24, 1937, 8:00 p. m., Library.

"Dr. J. Lawn Thompson, Chairman, presiding.

"Present: Drs. A. B. Bennett, Daniel L. Borden, Charles B. Campbell, C. N. Chipman, A. J. B. Connolly, David Davis, William T. Gill Jr., William P. Herbst Jr., Raymond T. Holden Jr., R. Arthur Hoce, Joseph

Horgan, H. C. Macatee, F. X. McGovern, Thomas E. Neill, Sterling E. Ruffin, H. H. Schoenfeld, William M. Sprigg, Earl R. Templeton, C. B. Conklin, members of the Executive Committee.

"By invitation: Drs. Thomas A. Groover, J. Russell Verhrycke Jr., Daniel F. Lynch (Secretary, D. C. Dental Society); Dr. Henry Rolf Brown, Mr. William F. Penniman, and Mr. Zimmerman."

Mr. Lewin:—Now, here at this joint conference, you would like me to read the entire colloquy, I assume. I can do it. I am not so sure, but probably it is best because both sides were present; it should be read.

"The chairman stated that the purpose of the special committee was to consider the Cooperative Medical Service plan as proposed to provide medical care for federal employees and their families. He called on Dr. Henry R. Brown to outline the procedure.

"Dr. Brown stated that he was not chairman of the committee. He would suggest that Mr. Penniman, who is the president of the organization, be asked to open the question. Dr. Brown added that he would be available to answer any medical questions that might be asked.

"The Chairman, addressing Mr. Penniman: 'Would you be good enough to state your method of procedure as to what your proposition is in regard to the Government employees?'

"Mr. Penniman:—'I am very happy to be here this evening to give you the information that I think you are entitled to, and to correct any misinformation that we have under consideration with the Home Owner's Loan Corporation. I was very much relieved when I said to Dr. Conklin a moment ago that we felt you had come up to prepare the operating room, but I find it is all right.

"The organization of which I am President is known as the Group Health Association. It is a body composed solely and entirely of the employees of the Home Owner's Loan Corporation and the affiliated agencies of the Federal Home Loan Bank Board. In addition to the Home Owner's Loan Corporation, which because of its size many of you gentlemen have heard a good deal about, there are other agencies such as the Federal Home Loan Bank Board, Federal Savings and Loan Association, Federal Savings and Loan Insurance Corporation. There are about 1,700 employees under these 4 agencies in Washington.

"We have from time to time made something of a study of the health conditions of the employees of these agencies of which the Home Owner's Loan Corporation is perhaps the largest. We have found, as a result of this study, that a great many of the employees whose salaries are in the lower brackets have not been able to take advantage of the medical service that they are entitled to or that they should have. We have found that the cost to the corporation as a result of sick leave has been heavy. Looking deeper into that we found a great many of them, young men and young women who have gotten married, that have illness. They are not indigent because they have employment and receive income. That income is about all they have to live off. It was proposed and the subject placed before the employees as to whether or not they should be interested in an organization whereby for a small monthly sum, payable in dues, within their ability to pay they could be provided with full medical services. The answer was very enthusiastic in the affirmative and encouraged us to go ahead with this movement. They have obtained a charter. We have already prepared by-laws, elected a board of trustees and officers. We have selected Dr. Brown as the Medical Director.

"Now it is proposed for this small monthly sum that they are to have everything that we can give them through this association in the way of medical service. The approach to it is on the lines of preventive medicine to the extent that we want these people who are members of this association to take full advantages of the services that it renders. We want them to be in a position to go to the medical center every day, every week, every month, and certainly once a year for physical examination. We believe that by so doing a careful physical checkup that oftentimes those whose salaries are small and with some illness they perhaps would attempt to take care of it themselves. Oftentimes it runs into a situation that becomes serious, we believe. It could have been corrected had they attended.

"We are impressed with this fact—that the advancement in medical research has been as outstanding, no doubt, as in the automotive industry. We know more about the automotive industry, because every magazine, every periodical, and radio broadcast has something to tell us about the advance in the automotive industry. It has been just as great in medical research. The great trouble, gentlemen, is so many people are not taking advantage of it, and they don't take advantage until they are flat or down and have to fall on the doctor. By this preventive approach we are in a position to take care of our people and the efficiency of their work is increasing very materially by being in better health, better state of mind, no bills to worry them at the end of an illness.

"I might say our medical service provides for hospitalization, provides for surgical, provides for obstetrics, provides for all of these services that we can give them within our medical center. It is proposed in our clinic to have modern equipment. It is proposed to have a staff of physicians, technicians of the highest type that can be selected, under the direction of Dr. Brown, to observe in every respect ethical medicine in the highest degree.

"I might say that some thought that this is a governmental institution. It is not a governmental institution at all. It is a private association, composed solely and entirely supported, managed and controlled by the employees themselves. It is localized to the District of Columbia.

"I will be glad to answer any questions."

The Secretary:—"When and where is this clinic going to be erected?"

Mr. Penniman:—"It is not going to be erected at all. We are not contemplating building anything, but it is contemplated to house it in a building centrally located and within easy access of transportation."

Q:—"In a Government building?"

Mr. Penniman:—"Oh, no, the Government has nothing whatsoever to do with this."

Q:—"Have you selected your location?"

Mr. Penniman:—"No, we haven't. We would be glad to have some suggestions."

Q:—"How about your personnel?"

Mr. Penniman:—"We thought we had done a pretty good job when we selected Dr. Brown and we stopped there, because we are laymen. The selection of the staff and technicians we turned over to Dr. Brown. Dr. Brown perhaps can answer that question."

The Chairman:—"We would appreciate it, Dr. Brown, if you would say something about the staff or medical aspect."

Dr. Brown:—"The selection of the personnel is now in order. We are interviewing and we have contacted quite a number of men. No actual selections have yet been made of the medical or technician personnel. We expect to procure the services of men who are qualified in the several fields of medicine; men who have practiced the highest standards of medicine obtainable. We will be highly ethical in our practice in every sense. The equipment is modern equipment for diagnostic purposes and treatment purposes. We will only treat cases that will come to the clinic; hospital cases will be treated at the hospital."

The Secretary:—"Will the staff be full-time salaried men?"

Dr. Brown:—"Full-time salaried men. It is a nonprofit organization, for the benefit of the Association."

The Chairman:—"There are four units in the making—the Home Owner's Loan Corporation, Soil Conservation Service, Reconstruction Finance Corporation and one other."

Dr. Brown:—"We have no connection with any other association."

The Chairman:—"Will it be compulsory for these individuals to join?"

Dr. Brown:—"Entirely voluntary."

Mr. Penniman:—"I would like to state that under our membership plan it is entirely voluntary on the part of the members to come in if they see the benefits of it; to resign any time they want to; to accept the services of our clinic. They may supplement it with their own doctor. They may take a portion of this service and maintain their doctor if they wish, and they may not come in at all."

The Chairman:—"Are these doctors that will be associated with the Association allowed to practice on the outside?"

Dr. Brown:—"Full time. No outside practice."

Dr. T. A. Groover:—"How many do you expect to have on your staff?"

Dr. Brown:—"To start with, four or five; perhaps more, depending on the needs."

Dr. A. B. Bennett:—"The membership can't be more than 1,700?"

Mr. Penniman:—"There is the individual membership for those who are single; family membership, which entitles the member and his already dependent members of his family to the benefits."

Dr. R. Arthur Hooc:—"May I burden you with two or three questions, gentlemen? You referred to the choice of the physicians to render the services and you use the personal pronoun "we." I am wondering from what the president just told us if that is not the "Lindbergh we." Does not that really mean you are choosing, and that you probably speak of it as "we" in personal modesty?"

Dr. Brown answered in the affirmative.

Dr. Hooc:—"Would you tell us, next, for the information of the committee, how you are guided in the choice of those physicians. I am trying to place myself in your position, with the same function to perform and wondering just how I would proceed in spite of the fact that I believe I am fairly well acquainted with the medical profession in the District of Columbia and in a pretty good position to choose from among the profession. Will you tell us how you proceed?"

Dr. Brown:—"By personal interviews with the men and qualifications and evidence that we can point to giving us qualifications, his associations and background. It is an unknown quantity. We tell them we feel you are qualified to perform a certain duty. After I have had you on my staff six weeks I find you are not worth anything at all—if not, out you go."

The Chairman:—"Do they make application or are they requested?"

Dr. Brown:—"I have interviewed quite a number of doctors who have sufficient qualifications to meet our demands."

The Chairman:—"The definite policy eventually would be of a man applying for such a position?"

Dr. Brown:—"There is no objection to a man applying if he could back up his qualification; then we would give it consideration."

Dr. C. N. Chipman:—"You referred to the people coming to the clinic that if you could not take care of them in the clinic you would then send them to the hospital."

Dr. Brown:—"I said that cases that were purely hospital cases would be referred to the hospital; we would only treat in the clinic those who are able to come to the clinic."

Dr. Chipman:—"Isn't it your intention to give complete medical care?"

Dr. Brown:—"Yes, we will give treatment in the homes if they are not able to come to the clinic."

Dr. Chipman:—"It is your intention to give complete medical care?"

Dr. Brown:—"We expect to have our staff give complete medical care."

Dr. Hooc:—"Do you think this corporation could function with any degree of satisfaction?"

Dr. Brown:—"We have the experience of 250 clinics in the United States. We feel we can do what they can do."

Dr. Hooc:—"Do you think this corporation could function to any degree of satisfaction with the hospitalization being left out of the equation?"

Dr. Brown:—"I don't see how we could complete treatment if the patient needed hospitalization and we dropped him there. It should be followed through. I don't think it could be done. The treatment is nothing more or less than a patient coming to your own office. He comes to you and he is well physically and mentally. You go over to the case and you examine him and you dispose of him according to your judgment. If he should go to the hospital you send him. If you can treat him in your office you treat him."

FEBRUARY 19, AFTERNOON

Mr. Lewin:—I will continue reading from the minutes of the special meeting of the executive committee of the District Medical Society held June 24, 1937:

"Dr. Groover:—"Counting the families which you are going to look after, how many individuals did you anticipate?"

"Dr. Brown:—"According to statistics every 100 would have 125 in the family."

"Dr. Groover:—"That is how many you would have?"

"The Chairman:—"It has been rumored that the project has been financed by the Federal Housing."

"Dr. Brown:—"I have had come back to me a great many rumors—one, that this covers proposed state medicine, etc. Those are rumors that gather momentum as they go. You know the old saying 'A lie travels around the world while the truth is putting his boots on.' The medicine that we practice is the same as you in your individual capacities. Three or four doctors work together; you have diagnostic facilities—that is all we propose, nothing more, nothing less."

"Dr. Horgan:—"How has the inauguration of this setup been financed?"

"Dr. Brown:—"I will leave that to the President to answer. I am interested in the medical."

"The Chairman asked *Mr. Zimmerman* if he had anything to add.

"Mr. Zimmerman:—"I am glad to be here and listen to the questions that are asked. They give an accurate and correct picture of what is undertaken."

"The Secretary:—"I would like to ask *Mr. Penniman* a few questions; first I would like to know *Mr. Penniman's* initials; second, if it is not too personal or inquisitive, is he connected with the United States Government?"

"Mr. Penniman:—"My initials are Wm. F. In answer to your second question I am an employee of the Home Owners' Loan Corporation."

"The Secretary:—"Official?"

"Mr. Penniman:—"Yes."

"The Secretary:—"High official?"

"Mr. Penniman:—"I don't know how high you would call me."

"Dr. Groover:—"May I ask a question? What do you estimate that your gross income from contributions would be?"

"Mr. Penniman:—"By contributions, you mean payment of dues. I should say, Doctor, in rough, round figures, around \$50,000."

"Dr. Horgan:—"How old is this?"

"Mr. Penniman:—"It is still on the bottle."

"Dr. Horgan:—"Could you answer the question I asked *Dr. Brown*? How has the inauguration of this undertaking been financed or subsidized?"

"Mr. Penniman:—"In answer to your question—the plan, as I stated a moment ago, is to be supported in the main by the membership dues. It has been fixed at a figure which we believe is within the income of those of the smaller brackets to pay. There is one question in connection with that perhaps you need to know. We have made a study of the situation and find that the cost of the Home Owners' Loan Corporation sick leave has been very expensive for services rendered to the Home Owners' Loan Corporation; in the examination of its employees, that the Home Owners' Loan Corporation may get more efficient work out of these employees; from the constant observation of health conditions among employees generally from which the Home Owners' Loan Corporation will be a direct beneficiary. The Home Owners' Loan Corporation has appropriated a sum, an initial sum for two years to start this."

"Dr. Groover:—"You speak about the lower income brackets. What are your limits as to membership?"

"Mr. Penniman:—"No restrictions at all."

"Dr. Groover:—"You take high or low income employees?"

"Mr. Penniman:—"If they are eligible employees of the corporation they are eligible to join."

"Dr. W. M. Sprigg:—"Is this not for any government employee?"

"Mr. Penniman:—"No, it is positively not. It is confined solely to the employees of this agency."

"The Chairman informed *Dr. Sprigg* (who was not present when the meeting opened) that this was one particular unit represented here tonight, speaking for itself only.

"Mr. Penniman:—"We know nothing about the others. We are not connected with them whatsoever. Speaking of the income brackets, about 80 per cent of the incomes will average \$2,400 and below."

"The Chairman:—"You say these men are full-time men. How are you going to prevent them from practicing outside? In all government departments there are some doctors who practice at night—we call them sundowners."

"Dr. Brown:—"I wish to take exception. Not all government departments. I have been with the Veterans Administration for the last 18 years. I don't know of a man now in the administration who is practicing outside. In our organization if we find a man violating his obligation to us by practicing outside, he will no longer be with us."

"The Chairman:—"That did not obtain in the Veterans Administration?"

"Dr. Brown:—"We have more men in the Veterans Administration than the others combined."

"Dr. Groover:—"Do you make a contract with your beneficiaries?"

"Mr. Penniman:—"Not a contract. It would be an application for membership. That application is passed on by the Board of Trustees just as any other organization. If they are eligible and are entitled to the benefits, they are elected—if not, they are denied."

"Dr. Groover:—"What is your criteria for accepting?"

"Mr. Penniman:—"The criteria in the first group those who are members. Those who are not now members, there is provision in the By-Laws that they cannot become members for 30 days; their dependents cannot become eligible for services for 90 days."

"Q:—"You do not make any guarantee either as to quantity or quality?"

"Dr. Brown:—"We make an agreement that we will give them the very best medical care."

"Dr. Groover:—"That is the contract?"

"Dr. Brown:—"That is the agreement."

"Mr. Penniman:—"It is just like joining a club. If you are not satisfied with the services you resign. If they are not satisfied they are entitled to withdraw at any time."

"Dr. Haac:—"Would you mind telling us, if you will—give us an illustration of what would disqualify new members for the benefits of this plan?"

"Penniman:—"I think one of the things that would disqualify them would be an abuse of the service. Any attempt to try and bring into the Association those who are not eligible would disqualify them and they would be dismissed."

"Dr. Haac:—"Before they are admitted?"

"Mr. Penniman:—"That is after they are in."

"Dr. Haac:—"How about before they are applying?"

"Mr. Penniman:—"I don't know anything that would particularly disqualify them with the exception that on examination it is found that they have tuberculosis, and perhaps have to be confined to a sanatorium—we are not going to take care of these people for the length of time they will be confined. Things are in our by-laws that we do not go into."

"Dr. Haac:—"How about the venereal diseases?"

"Dr. Brown:—"We will treat venereal diseases with an extra charge of 50 cents per treatment."

"The Chairman, Dr. Thompson, inquired as to the medical personnel."

"Dr. Brown:—"The medical personnel will probably be from four to six men."

"The Secretary:—"With those four or six men, would they include the various specialties? I understand you are going to give these people the very best medical care. I would think it would be presumptuous that you would use these six or eight men to take care of the general work."

"Dr. Brown:—"Consultants on the outside would take care of any special work."

"Dr. Conklin:—"Would they be full time?"

"Dr. Brown:—"No."

"Dr. Conklin:—"You would have a contract with the specialist?"

"Dr. Brown:—"Yes."

"Dr. Conklin:—"In all fields?"

"Dr. Brown:—"Per unit basis."

"Dr. Groover:—"You drop a member for nonpayment of dues?"

"Dr. Brown:—"I think those are matters that concern us and not so much the Society. They are our problem and not your problem."

"Dr. Groover:—"It is a problem that will naturally interest us, because if you do that—"

"Dr. Brown (interrupting):—"A person is eligible who keeps his dues up."

"Dr. Groover:—"If he drops out who is going to look after him?"

"Dr. Brown:—"Through the same source as he gets it now."

"Mr. Penniman:—"If he is not able to meet the monthly payments to this corporation he will come to you. He will be just the usual charity case."

"Mr. Zimmerman:—"I think it is fair to say that if you had an employee whose financial condition were such, that an arrangement could be made to carry him along until he could pay."

"Dr. Groover:—"There ought to be. He would automatically be thrown on the medical profession on the outside."

"Mr. Zimmerman:—"If we don't pay dues at the club we don't play golf. It is not the same way here."

"Dr. Brown:—"Every doctor would understand that question perfectly. We would be as human as the average practitioner of medicine."

"Dr. Groover:—"The question has many implications, I will cite some of them, by personal illustration: Some ten years ago I happened to be down in Havana and I went out of a hotel and asked a hackman to take me to the best hospital in Havana. Said he, 'I will take you to the Club Hospital.' He drove me out to the hospital and I was quite impressed. It was a nice hospital. I looked around, visited the x-ray department, etc., and I asked, 'How is this supported?' He said, 'Well, the members of this club pay \$2 a month dues.' I said, 'How many members have you?' He said, 'We have upwards of 50,000 members.' With a little rapid calculation this is \$1,200,000 a year. I thought nothing more about it, but as time went on you see the position we were in. About all the outside doctor would have to do would be to take care of the indigent and the riff-raff and the members who had been dropped by the club. Now that, you see, left them in a plenty bad way. All they had to do was to look after indigent groups. That did not go on. I don't know all of the facts. I have been reliably informed that that very situation was largely instrumental in developing this last revolution they had in Cuba. The doctors who were on the outside were about to starve to death and to use a popular expression, they were on a sit-down strike. Many of them left Cuba and came over to Miami. I merely mention that to recall to your minds that this sort of thing has implications."

"Dr. Brown:—"We have no indigents in employment."

"Dr. Groover:—"Your people may become indigent."

"Dr. Brown:—"Then it becomes the matter of the state."

"Dr. Groover:—"I see, but as a matter of fact the state don't take care of indigents."

"Dr. Brown:—"We are not going to drop a man or let a man suffer for lack of care if he is a member of our group. That is a humanitarian principle that you apply in your own practice."

"The Chairman:—"You spoke about tuberculosis. If an employee had active tuberculosis he would be doubly in need of care. He would not be allowed to work in the Government—he would be dropped from the group."

"Dr. Brown:—"We provide this to the point where it be recommended that be have institutional care."

"Dr. C. N. Chipman:—"It is said you intend to give dental service as well as medical service."

"Dr. Brown:—"We haven't considered that."

"Dr. Hooe:—Have you yet arranged the duration of the hospitalization in your mind—the extent of the time during which your beneficiaries may be hospitalized?"

"Dr. Brown:—Twenty-one days for any one illness, except in contagious diseases.

"Dr. F. X. McGovern:—I gathered from your initial statements that one of the facts that caused you to inaugurate this plan was your sick bill, or health bill, in the Home Owners' Loan Corporation. Have you proven that the sick bill is out of proportion to other departments of the Government?"

"Mr. Penniman:—I could not answer that because I made no check of any other departments of the Government.

"Dr. McGovern:—Notwithstanding in your own organization by comparison, what you have heard of other departments?"

"Mr. Penniman:—No comparison.

"Dr. McGovern:—Because of your particular health bill—

"Mr. Zimmermon (interrupting):—You perhaps realize that the Home Owners' Loan Corporation is somewhat different from other Governmental agencies in that it operates on a reduced amount of lost time because of sickness, physical fitness. The employees show that you get better performance just like any private concern.

"Dr. McGovern:—I hadn't any knowledge that it was any different than other Federal departments.

"Mr. Zimmermon:—We have a different interest in improving operating efficiency.

"Dr. McGovern:—Dr. Brown, in your general statement you brought out the fact that you planned to practice ethical medicine. Just how can you reconcile having staff men with free choice of physicians? How the patient would have free choice of physician, in terms of the ethics of the American Medical Association?"

"Dr. Brown:—The people join with the knowledge of the staff and, of course, there would be no free selection only as it pertains to the staff itself. If they are not satisfied with that staff they are privileged to get any one they please at their own expense. We give them the service—we guarantee the service we have for them.

"Dr. McGovern:—In your setup there is no free choice of physician if they continue to belong?"

"Dr. Brown:—They accept the faculty or staff as is. If they wanted you we could not have you to come in and see them.

"Dr. Groover:—According to rough figures you have an income of \$50,000 a year. With that you propose to hire five or six doctors—full-time. You are proposing to hire technicians to operate the clinic and possibly pay rent, etc., and then provide hospitalization. I don't know why, but that just lets the question that it seems to me you are operating the thing on a rather slim budget to provide the patient with medical care.

"Dr. Brown:—We don't feel that way about it, Doctor. I have recently visited a number of clinics in operation. I have visited within the year the Loos clinic in Los Angeles which has 15,000 members and a staff of 60 men. Have visited other clinics that have a staff of six or seven men, or four or five men. Recently I visited the Milwaukee-Rue clinic which has five men. I visited other clinics in Chicago; in Philadelphia there is also operating successfully a like and similar clinic giving excellent treatment. They are really practicing men who know a lot. It has been demonstrated that they are fully satisfied with the setup.

"Dr. Groover:—Just developing the fact.

"Dr. Conklin:—The Home Owners' Loan Corporation is not just a local affair?"

"Mr. Penniman:—Oh, no. It has branches throughout the country. "Q.—Would you be so good as to state whether you have any control over these branches outside of Washington?"

"Mr. Penniman:—This is the headquarters. It has important offices in every state.

"Dr. Conklin:—It would seem reasonable to you that this clinic to be successful, which I believe it is going to be, that this clinic be instituted in these other areas?"

"Mr. Penniman:—It is not contemplated at all. I would say there is only one factor that would subscribe to it. We have in our regional offices where there is the largest number of employees, what we call a First Aid Room. There is a trained nurse in charge, i. e., to take care of just the emergency cases that develop during the day. Employees are privileged to go into this First Aid Room and get temporary treatment. The only contemplation at this time is to place those infirmaries under the directorship of the Medical Director to the extent that these nurses will have some directing head. We don't want these nurses giving hypodermics when they have no business to—they have no business prescribing medicine. We think they ought to be under the supervision only of a medical director as to the extent of the treatment it calls for.

"Dr. Conklin:—Under whom are these nurses now?"

"Mr. Penniman:—Under the management.

"Dr. Conklin:—Governmental?"

"Mr. Penniman:—Home Owners' Loan Corporation's local management.

"Dr. Conklin:—A Governmental institution. The nurses are definitely governmental employees?"

"Mr. Penniman:—On the payroll of the Home Owners' Loan Corporation.

"Dr. Conklin:—Now then you propose to take them out of the Government?"

"Mr. Penniman:—Leave them in the Government.

"Dr. Conklin:—And then Dr. Brown would have a double function. He would be acting as a governmental official and also supplementing as a head of an institution?"

"Mr. Penniman:—He would not prescribe for any patients.

"Dr. Conklin:—Dr. Brown would not have any government position at all?"

"Mr. Penniman:—He would not be under the Government.

"Dr. Conklin:—Suppose that Dr. Brown, for instance, issues some orders to some of these nurses and they are not just right fundamentally. Now, who would step in and who would have anything to say about Dr. Brown's definitely apparent misdeeds?"

"Mr. Penniman:—The same person that would step in right now, under the direction of laymen, which is a situation we have never liked. Having them only with Dr. Brown as a guide to certain limitations to which he advises—only a matter of advice.

"Dr. Brown:—That would be through the local management?"

"Mr. Penniman:—He tells them what they should not do.

"Dr. Conklin:—Is there nothing extraordinary in your mind about that situation?"

"Mr. Penniman:—It occurs all right.

"Dr. Conklin (continuing):—Dr. Brown, operating an enterprise that is entirely disassociated from the United States Government and yet Dr. Brown does have something to do with the Government in these various places throughout the United States.

"Mr. Penniman:—As I stated this extension of this plan out of these areas is not contemplated at all. They would still continue to operate as they are now operating. Whatever benefits Dr. Brown could give them would be that in any local situation. Any local doctor would be glad to advise the nurse as to the extent of the treatment she should give.

"Dr. Conklin:—No connection with the Public Health Service?"

"Mr. Penniman:—None at all.

"Dr. Groover:—I would like to ask if your organizing committee considered any other form of setup for operating this service which you speak of?"

"Mr. Penniman:—For example, what would you have in mind?"

"Dr. Groover:—For instance, you wouldn't see if you could make any arrangements with the Medical Society to render the service to a group of people?"

"Mr. Penniman:—Would it have been possible if we had contacted the Medical Society whereby the employees could get the benefits of the Medical Society?"

"Dr. Groover:—I think it may be possible.

"Dr. A. B. Bennett pointed out that the employers, under compensation laws, through the Insurance Company pay the doctors per visit, per unit of service. They don't maintain a clinic and use the profession of the city.

"Dr. Groover:—I don't speak for the Medical Society. I don't mean for you to interpret it that way. I think I would be willing, for instance, to bargain with a group on some such basis.

"Dr. Brown:—What is the material difference in the way it is being done?"

"Dr. Groover:—I think I can point that out. The reason I asked that question was the answer 'best medical service.' There is a difference of opinion as to what might be best medical service. The difference is you pay into the concern certain amount of money; the other plan you pay for what you get when you get it.

"Dr. Brown:—Insurance contracts are not always satisfactory. There is a great deal of fault found in the way it is operated. We feel this is a much more satisfactory and more reliable plan.

"Mr. Penniman:—You are familiar with the Group Hospitalization plan, for which I think the members pay 75 cents a month. There is no unit basis.

"Dr. Groover:—I beg to differ. Your contract with Group Hospitalization provides certain specific accommodations for a certain specific time. They have a definite contract—you don't have.

"Mr. Penniman:—The point I was making—you don't use hospitalization until you need it, although you may be paying for several years. Not a unit basis at all. It is really hospital insurance. We would prefer in our Association to look upon it the same way as health insurance.

"Dr. Groover:—That is all right, but isn't this—

"Dr. Brown (interrupting):—A prepayment health insurance plan, nothing more, nothing less.

"Dr. Groover:—The Workmen's Compensation is pretty much the same thing. I have been buying Workmen's Compensation insurance for a number of years, and never got a penny back from it. Isn't that right?"

"The Chairman:—Men with a salary you could pay on a basis of a \$50,000 proposition—

"Dr. Brown:—I could get many competent men around Washington; could get men right here in Washington who are not making a decent living.

"Dr. Conklin:—Why do you think they are not making a decent living?"

"Dr. Brown:—I don't know the reason.

"Dr. Conklin:—Do you think the men of best ability are making a living?"

"Dr. Brown:—I think the men with the best ability are making a good living. Men with equal ability are not simply because they have not got the standing, not here long enough. Development of practice takes a number of years.

"Dr. C. B. Campbell:—What do you propose paying these doctors?"

"Dr. Brown:—That depends on their ability.

"Dr. Campbell:—I have done a little figuring: The Medical Director is to receive \$10,000; five physicians, say 5 @ \$5,000 would be \$25,000; rent \$2,000, which I think is very reasonable, would leave \$13,000. You have hospitalization of the patient, technicians, equipment, secretary, your office force, your overhead, and I was wondering if the Executive Committee or your Committee on Arrangements get any salary.

"Dr. Brown:—No salary.

"Dr. Campbell:—If I was running a store on that overhead I doubt that I would have a profit.

"Dr. Brown:—We don't want a profit.

"Dr. A. B. Bennett:—Is there any way the Medical Society could help?"

"Dr. Brown:—We are anxious to go with the Medical Society. I am anxious to become a member. We will be very glad to have our staff make application and go with your Society in every way we can for the uplift of medicine. If you can help us select personnel we will be glad to take recommendations from this organization, to consider them, and perhaps employ them.

"The Chairman asked if Dr. Daniel F. Lynch, Secretary of Columbia Dental Society, had any questions to ask.

"Dr. Lyuch:—I would like to ask Dr. Brown—in your visit throughout the country, did you find sections on dental diagnosis in connection with these clinics?

"Dr. Brown:—Some of them are partnerships; some on salary, some on commission. We are not at this time considering dental service at all.

"Dr. Hooe:—May I ask Mr. Penniman two brief questions? Do you find, as a result of your study of this plan, are you led to the conclusion that by means of this plan the individual beneficiary is subjected to less expense during any given year than he has been in the past—that it is a financial saving to him?

"Mr. Penniman:—Yes, not only a financial saving to him but gives the member the benefits of a medical service which would cost him a great deal more money if he didn't take advantage of it.

"Dr. Hooe:—Second, and last question. Did we not understand you to say that you have incorporated and that you now have the articles of incorporation in this activity in which you are going to hire certain members of the medical profession to do your medical work?

"Mr. Penniman:—Yes, that is correct. The corporation is chartered to employ the medical physicians.

"Dr. Bennett:—Incorporated to render medical service?

"Mr. Penniman:—Yes.

"Dr. Groover:—Do you operate under any insurance law?

"Mr. Penniman:—What do you mean?

"Dr. Groover:—They have insurance laws in the District of Columbia.

"Mr. Penniman:—Indemnifying the doctors?

"Dr. Groover:—No. Under the District of Columbia Insurance Law all life insurance companies in the insurance business have certain regulations prescribed by Congress. This is a health insurance. For instance, they have Group Hospitalization, Inc., under the District of Columbia Insurance Law.

"Dr. Brown:—It is not a health insurance in that sense. We don't insure the health as your insurance policy covers it. Not an insurance in that sense at all.

"Dr. Groover:—Isn't that sidestepping the question?

"Mr. Penniman:—No. I don't think it is. It does not mean we will pay them for health insurance for benefits. It is preventive medicine.

"Dr. Groover:—Other companies do exactly the same thing. You go down and buy a Health and Accident policy; that company has to be licensed to practice under the law.

"Dr. Thomas E. Neill:—Don't they get around that by deducting sick leave and the salary goes on just the same?

"Dr. Brown:—We go on according to the rules—sick leave and absence leave. May be 30 days, or 15 days, so much according to leave. Annual leave may be applied to sick leave. They are paid for a definite period. In Civil Service they have a definite period for sick leave. If you use that up you can call on your annual leave. If it goes beyond 90 days they are on without pay.

"Dr. W. M. Sprigg:—Suppose you should be stricken with an epidemic and your funds immediately available are used up. Where would you secure funds to carry on? Have you any reserve?

"Mr. Penniman:—There is no reserve. We probably would come to the Medical Society for some help.

"Dr. H. H. Schoenfeld:—The employees are not necessarily Civil Service employees?

"Mr. Penniman:—There is no reason why the Association could not either raise the dues or lower the dues, according to whatever its treasury is. It is a nonprofit organization. The officers and trustees receive no salaries.

"Dr. Sprigg:—Just as we do in hospitals. We have given our services to the indigent for years.

"Dr. Schoenfeld:—The employees of this corporation are not necessarily Civil Service employees?

"Mr. Penniman:—This is a private corporation.

"Q.—It is not a Government department thing?

"Mr. Penniman:—Private institution entirely.

"Dr. Sprigg:—I would like to ask whether the Home Owners' Loan Corporation, in the case of emergency, will come forward and loan you money to carry on?

"Mr. Penniman:—I don't know how we could go to the Government and ask for it.

"Dr. Sprigg:—The Government can do anything in an emergency.

"Mr. Penniman:—We would not refuse.

"Dr. Schoenfeld:—Your corporation can for purposes of study of health, appropriate money to this organization?

"Dr. Sprigg:—The Home Owners' Loan Corporation can appropriate to the organization for services rendered it. The Home Owners' Loan Corporation in the case of emergency can appropriate without any Government supervision?

"Mr. Penniman:—That is right.

"Dr. Conklin:—I think that all of us present tonight appreciate just what these gentlemen have done. They have been kind enough, good enough to come down and meet with us. They have answered all of our questions and haven't denied us at all, no matter what their own personal feelings may have been concerning some of them. We are primarily interested in the patient's welfare. That has been demonstrated time and again in this country and throughout the United States. I am wondering if they would accept the opportunity of a committee of three of the Medical Society to meet with them, with a view to making presentation as clearly as possible of the Medical Society's attitude primarily toward this particular proposition from the viewpoint of the patient, primarily. I wonder if that would be acceptable. I have no authority to say that the Medical Society would appoint such a committee. But if that would be acceptable to the Medical Society do you gentlemen think you would accept a proposition of that kind?

"Dr. Brown:—A further meeting to elucidate certain questions?

"Dr. Conklin:—I am sure there are certain ideas that definitely seem to be fixed. There is a possibility in further conference with three representatives of the Medical Society, who would go down to the Home Owners' Loan Corporation and talk these things over and see whether or

not some alternative proposition will operate that would be acceptable to some 800 practicing physicians here in the District of Columbia. I would think it would be a wonderful thing.

"Dr. Brown:—Our objectives are identical with those you have expressed. We have no objections to meeting any committee of three.

"The Chairman:—To confer with their own committee if they would like to have such a meeting?

"Mr. Penniman:—We have a Board of Trustees.

"The Chairman:—It might not be a bad idea and to have as many men as they want to, to discuss the thing further. There is no question that other units in the Government are going to undertake the same thing.

"Dr. Conklin:—If we may have a definite assurance, tentative acceptance of this plan, I think your coming down has been just a most successful thing with a view to definite harmony. I think that is what we want. We want to see these men and greet these men, and have them certainly not fighting organized medicine, because I think any doctor who attempts to do that is doomed to failure. We want to have this committee of three representatives to meet with you and talk these things over and with a possibility of making some little re-arrangement wherein we can come before our entire membership and present this thing and recommend adoption.

"Dr. Brown:—We are anxious for cooperative intercourse. We would be glad to consider those plans.

"Mr. Penniman:—I want to say—I should have said and would have liked to have said at the outset—reversing the words of Shakespeare: 'I came down with the idea of praising Caesar not burying him.' I have the most profound respect for the medical profession—always have had and always will have. It is the desire of this Association to work to the ultimate end that we may give our employees medical care. I speak not as an official of the Home Owners' Loan Corporation but as one of the employees. Medical Service of the highest type, within their ability to pay and to solicit at every point of view possible the full cooperation of the Medical Society of the District of Columbia. Glad to have it. I would like to make a suggestion—since we have a Board of Trustees consisting of eleven employees of the corporation who have been elected by the employees, that if you would be good enough to drop us a line so that we can put it clearly to the Board, your point of view, I am safe in saying that it would be met with a ready response.

"Dr. Conklin:—You mean the point of view as to this committee of three?

"Mr. Penniman:—Yes.

"At this point Mr. Penniman, Dr. Brown, and Mr. Zimmerman left the meeting.

"The Chairman asked the wish of the committee in the matter.

"Dr. W. M. Sprigg was of the opinion that the committee could do nothing until the Society as a whole authorized it.

"Dr. A. B. Bennett felt that a subcommittee should be appointed to bring about some changes in the arrangements before a Society meeting was called, and the committee should have the plan as near finished as possible.

"Dr. R. Arthur Hooe stated that he agreed with Dr. Bennett, but at the same time the committee was committing itself and definitely taking action on a matter involving public policy. 'While I am not in personal sympathy with it you placed in the Constitution last winter a provision that prohibits a committee of this kind from taking this action.'

"The Chairman brought out the fact the report submitted by Dr. Verbruycke at the last meeting of the Executive Committee was accepted in principle.

"Dr. Hooe said the committee could present that report to the Society and ask it to appoint a committee to confer with a committee of the Group Health Association. But when the Executive Committee appoints a committee to meet with this group to effect a compromise, to iron out the differences, for which the Executive Committee tonight does not stand, Dr. Hooe was of the opinion the committee was therefore taking action on a matter involving public policy. He added, 'You must have a meeting of the Medical Society and present Dr. Verbruycke's plan and what has occurred here tonight and ask it to appoint a committee.'

"The Chairman said he would welcome a motion to the effect that a copy of these minutes be sent to the Active Membership so they would know what was going on. It was his opinion that 90 per cent of the membership knew nothing about this plan.

"Dr. J. Russell Verbruycke made a motion that a copy of the Executive Committee report be sent to the membership for their digest with a notice that the matter will be acted upon at a certain meeting of the Society. He brought out the fact that his report contained the recommendation that a committee be appointed to carry on the work and not just for the purpose of meeting this committee but to get together and try to formulate a plan which will not violate any provisions or principles of the Medical Society. Any final action would be dependent upon both organizations; not only of this organization but that of subsequent organizations which develop. Dr. Verbruycke pointed out that to make his motion parliamentary, it should come from a member of the Executive Committee.

"Dr. H. H. Schoenfeld moved that Dr. Verbruycke's suggestion be adopted. Seconded.

"The Chair pointed out that there were four of these units in the making. He added that Dr. Brown was adverse to meeting with the Executive Committee of the Society, postponing the time set. Just today at 12 o'clock he again called and asked to have the meeting postponed to a later date. The Chairman told Dr. Brown that this could not be done.

"Dr. Sprigg would inquire if the motion would mean that a committee of eleven is to be appointed to meet with the committee of Group Health Association?

"Dr. Schoenfeld said that was not the intention. He said it was his idea in offering the motion suggested by Dr. Verbruycke, that the whole thing should be carried promptly to a special meeting of the Society; therefore the report becomes the report of the Executive Committee of

the Society. Then after the Society has made its determination, the Committee may be set up as indicated. He said he realized that if a committee is appointed after a meeting by the Society, that that committee would come back with a final report that would require another meeting at a later date.

"Dr. Sprigg offered an amendment that the personnel of the committee be not greater than five members.

"Dr. Schoenfeld accepted Dr. Sprigg's amendment.

"Dr. Horgan would inquire if these plans were predicated on the fact that we accept this thing that an organization of our Federal Government is undertaking.

"Dr. Sprigg said that had nothing to do with this committee; that it was purely for the purpose of bringing Dr. Verbyrck's report before the Society, which report has been accepted in principle by the Executive Committee.

"The Secretary said: 'It occurs to me that it might be a better idea to have this committee of five perhaps being constituted by members of the Executive Committee who have been fully cognizant of what has been going on and to not have this committee to be too official as representing the Medical Society. We shouldn't step that far yet. The function of this committee should be largely that of finding points on which we might possibly agree and then finding the points on which we couldn't agree. In other words this committee is to feel out the organization and see where, if any place, they are willing to submit to arbitration or to consider some other scheme than the scheme they have now. If we can get some modification of this scheme it is my personal view that we have done a lot. Endicott-Johnson had this same identical setup in New York State. The New York State Medical Society and Broome County Medical Society fought this thing tooth and nail. The result was that Endicott-Johnson did as they pleased and they give full medical care to the employees and all their families. They know about the Ross-Loos outfit in California. It was bucked by the California State Medical Society. They know about the other organizations throughout the land. Dr. Brown has that information. As I told Mr. Zimmerman the situation in the District of Columbia is different, where if this thing spreads to all government employees, which I have no doubt will be the situation, we can all realize what will happen to the practice of medicine in the District of Columbia. The seriousness of that situation means we should have a committee to go to their committee and feel out the whole thing; sift it out and get information about getting it to the Home Owners' Loan Corporation throughout the states. It is going to be widespread. My idea would be to have this carried on without this committee having any authority to bind the Society—just to find out what they will accept.'

"Dr. Hoee:—Briefly Dr. Conklin's idea would sound all right. I am referring to that part of it relating to the choice of five men of the Executive Committee. Ordinarily that would be all right. I think this whole matter is of extreme importance. I think I see the possibility of its being ironed out if the right five men are chosen and I don't see why, in choosing those men, if there are one or two best suited for that committee—I feel we can ill afford to leave them off that committee because they are not members of the Executive Committee. I refer to Dr. Tom Groover. He ought to be on that committee. His judgment will have weight on that committee. If the Chairman could go out of the Executive Committee and be permitted to choose I would say have Tom Groover on that committee.'

"Dr. Schoenfeld would ask how about Dr. Verbyrck.

"Dr. Hoee:—Had no objections to Dr. Verbyrck serving on the committee.

"The Secretary would suggest that the incoming President appoint an unofficial committee.

"Dr. Hoee did not agree with the suggestion.

"Dr. Thomas E. Neill was of the opinion that a copy of what was learned tonight should be sent to the membership, with a copy of Dr. Verbyrck's report, and the matter should be brought to the floor of the Society. He felt there should be no hurry.

"The Secretary stated the organization was 'ready to shoot.'

"Dr. Neill added, 'They are shooting with their guns half cocked.'

"Dr. H. C. Macatee:—There are certain things that have occurred to me that I would call to your attention. This is something that affects vitally the whole membership of the Medical Society. Certainly no committee of it would undertake to do anything that seemed to commit the Society to any position in regard to it, but I would like to express the opinion that this is not a matter of public policy. If the Medical Society of the Executive Committee were to undertake to recommend that the Medical Society endorse cooperatives of this sort as a social setup in the District of Columbia, that would be a question of public policy. If you consider that this is a question of public policy then under the Constitution we are required to send this report and any action of the Executive Committee to every member of the Medical Society before calling a meeting to consider it. It seems to me that the report and the suggestions contained in it are very tentative offers of a possible organizing interest between two existing corporations. The Medical Society has been chartered over 100 years, and this corporation is incorporated and has a legal status. We can't express any opinion as far as the public policy is concerned. If this proposal is published to the whole membership of the Medical Society it, to a certain extent, becomes a public document. Whether the Medical Society adopts it or not it becomes a public document—it can't be helped. It seems much wiser for the Executive Committee to feel out whether there is any possibility of this corporation even considering a proposal of employing the organized medical profession as its agency for rendering the services as it promises to its people before you go to the Medical Society with anything.'

"Dr. Hoee:—Does that mean that the committee can go to these people but not in any way commit the Society—it can't offer anything? That would appear different.'

"The Chairman:—What is the sense of appointing a committee unless we have something to offer?'

"Dr. Sterling Ruffin:—This committee has a right to further confer along the same lines as we did tonight—not to commit the Society—for the purpose of getting all the facts. We can then bring it before the Society and let the Society take any action it deems proper. We have a perfect right to appoint a committee—suggest the appointment of a committee of five of this committee—with authority to take with them any members outside of the Executive Committee whom they wish; that would bring in Dr. Groover and Dr. Verbyrck, if they wish to have their assistance. There is nothing wrong about that.'

"Dr. Schoenfeld at this point withdrew his motion.

"Dr. Ruffin made a motion that a Subcommittee of five members be appointed from the Executive Committee, with authority to add to the committee any other members of the Society, to confer further with the committee of the Group Health Association for the purpose of getting all of the facts concerning the Cooperative Medical Service Plan. Seconded. Finally adopted.

"Dr. A. B. Bennett pointed out that some hospitals require that the courtesy staff should be members of the American Medical Association. Dr. Brown's cooperation with the Medical would seem important. Dr. Bennett would suggest that these facts be brought to the attention of the rest of the board.

"Dr. Joseph Horgan was of the opinion that they should conform to the Principles of the American Medical Association. The thing that behooves us to attack is the fact that they have admitted they are setting up a corporation with taxpayers' funds to practice medicine. I asked Mr. Peniman with what funds was this thing subsidized; he admitted that it was from the funds of the Home Owners' Loan Corporation, an agency of the Government.'

"Dr. Bennett pointed out that the Home Owners' Loan Corporation does not use taxpayers' money.

"Dr. Horgan added: 'Essentially it is an agency of the Government. Remotely, if not directly, they are using taxpayer's money. If it were not true they would have to carry compensation policies to protect their own employees.' If the Society does not combat this plan there will be set up 'in our midst a Federal Agency unit for the corporate practice of medicine.'

"The Chairman appointed the following committee: Drs. Sterling Ruffin, Thomas A. Groover, H. C. Macatee, Thomas E. Neill and J. R. Verbyrck Jr.

"It was pointed out that Drs. Groover and Verbyrck were not members of the Executive Committee. Dr. Sterling Ruffin asked not to be appointed as he was so much opposed to the plan.

"The Chairman reserved the right to appoint a subcommittee at a later date."

"Adjourned.

"C. B. Conklin,
"Secretary."

"* Dr. Thompson appointed the following subcommittee:

"H. C. Macatee; F. X. McGovern, Chairman; Earl R. Templeton; William P. Herbst Jr. and Coursen B. Conklin."

Mr. Kelleher:—I will now read Exhibit 106, which is an original letter from Dr. William P. Herbst, 1726 I Street, Northwest, Washington, D. C., to Dr. Olin West, Secretary, American Medical Association, Chicago, dated June 25, 1937:

U. S. EXHIBIT 106

"Dear Doctor West:

"I wish to thank you for your very kind letter which I received a short time ago.

"In regard to Sir Henry Brackenbury, I will be as nice to him as I know how and see if I can find out anything that is of any importance.

"We are having a great time locally here at the moment. That Group Health Service affair of the Home Owners' Loan Corporation has already been incorporated and our Executive Committee had a meeting with some of their representatives last night and it certainly looks bad. It was brought out that it is possible for them to borrow money from the Home Owners' Loan Corporation when and if necessary at any time for any purpose in regard to the health problem. It was also brought out that there are about two hundred branches scattered throughout the United States which maintain emergency rooms with a nurse which are directly under the central office here in Washington. Just what is going to come out of the whole affair is impossible to predict at this time but there are going to be some conferences in an attempt to go along with this outfit if it is possible to do so and retain our faces.

"I am on my way up to the A. U. A. in Minneapolis and if I can steal any time on the way up or way back, I shall give you a call and trust that it will be possible to have a little visit with you.

"With very kindest personal regards, I am

"Sincerely,
"William P. Herbst."

Exhibit 135 is an excerpt from the minutes of the Board of Trustees of the American Medical Association for June 29, 1937:

"Home Owners' Loan Corporation; Group Health Association, Inc.; Group Medical Service Plan (p. 294):—

Mr. Leahy:—Will you indicate the pages, please?

Mr. Kelleher:—17 and 18.

"The following paragraph from a communication which Dr. West received from a physician in Washington, D. C., was read:

"The Group Health Service affair of the Home Owners' Loan Corporation has already been incorporated and our Executive Committee had a meeting with some of their representatives last night and it certainly looks bad. It was brought out that it is possible for them to borrow money from the Home Owners' Loan Corporation when and if necessary at any time for any purpose in regard to the health problem. It was also brought

out that there are about two hundred branches scattered throughout the United States which maintain emergency rooms with a nurse which are directly under the central office here in Washington. Just what is going to come out of the whole affair is impossible to predict at this time but there are going to be some conferences in an attempt to go along with this outfit if it is possible to do so and retain our faces.

"Dr. Woodward reported information secured from a Washington physician over the telephone and by letter concerning this matter and there was considerable discussion as to what the action of the American Medical Association should be concerning the activities of the H. O. L. C. and also concerning the proposal of the Medical Society of the District of Columbia to organize its own cooperatives. After the discussion the following actions were taken:

"Dr. Bloss moved that the Editor and the Secretary and General Manager be authorized to proceed to inform the profession of the country as to the efforts of the H. O. L. C. to enter into the practice of medicine and as to the present status of the proposal to organize cooperatives by the Government. Dr. Hayden seconded the motion and it was carried.

"Dr. Hayden moved, and the motion was seconded by Dr. Bloss and carried, that Doctors Woodward and Leland be requested to go to Washington to see what they can learn and to try to advise the Medical Society of the District of Columbia if that Society is willing to accept advice."

Exhibit 177 is an original memorandum written by the defendant W. C. Woodward on June 28, 1937:

U. S. EXHIBIT 177

"About four o'clock p. m., June 28, I talked with Dr. J. Russell Verbyrck Jr., Washington, D. C., relative to certain statements in a letter just received by Dr. West from Dr. Wm. P. Herbst, Washington, concerning the Group Health Association, Inc., organized in Washington under the auspices of the H. O. L. C. I referred particularly to Dr. Herbst's statement that the representatives of the Medical Society of the District of Columbia who met with representatives of the Association planned 'to go along with the Association' if they could do so and save their faces. I suggested to Dr. Verbyrck that I could not see how they could go along with the Association named without violating the principles of medical ethics of the American Medical Association. His answer was in effect that they would try to work out some plan whereby they could do so. Cooperatives, he said, were already with us, and the representatives of the Medical Society of the District of Columbia thought it would be better for the Society to help organized cooperatives on an ethical basis rather than oppose the wishes of the Association named. I asked him what cooperatives he knew of, and he named the Group Health Association, Inc. I called his attention to the fact that that organization was an illegal corporation, if there could be such a thing, in that it was incorporated to engage in the practice of medicine and dentistry. Dr. Verbyrck said that representatives of the Association had said that it was not planning to engage in such practice. I told him that its charter definitely planned that it should do so. He said that representatives of the Association had refused to furnish him with a copy of its articles of incorporation and he was much surprised when I told him that those articles were matters of public record and that I had a copy of them.

"I asked him what Dr. Herbst meant when he said that there were already two hundred emergency rooms with nurses in attendance, under the direction of the central office in Washington. Whether he meant that these two hundred emergency rooms were under the Washington headquarters of the office of the Association organized under the auspices of the H. O. L. C. He said that reference had not been made to the present existence of two hundred such emergency rooms under the Association, but ultimately the Association expected to have that number of rooms throughout the country.

"Dr. Verbyrck said that he had prepared a lengthy report on the situation, which report had been approved by a subcommittee and then by the full executive committee of the Medical Society. He promised to send a copy of that report and to try to get it off by air-mail, special delivery tonight. He said, too, that minutes had been kept of the recent conference with representatives of the Association and that he would send me a copy of those minutes.

"Dr. Verbyrck said that a Mr. Penniman had stated that 'they' had the same right to look after the health of their employees that any private corporation had to look after the health of its employees. I suggested that in my judgment the representative of the Corporation had done some tall bluffing in the conference, but he felt confident that that would not be the case because Mr. Penniman is a high official in the H. O. L. C. and a smart man. I suggested that that very type would do the bluffing. Dr. Verbyrck expressed a wish for cooperation by the American Medical Association, but I had to tell him that we certainly could not cooperate with his group if it did not let us know what was going on. If we had been given notice of the proposed conference with representatives of the H. O. L. C., I might, I told him, have come to Washington to attend.

"W. C. W."

Mr. Kelleher:—Exhibit 198 is a carbon copy of a letter written over the signature of William C. Woodward, dated July 2, 1937:

U. S. EXHIBIT 198

"Dr. C. B. Conklin, Secretary,
"Medical Society of the District of Columbia,
"Washington, D. C.
"Dear Dr. Conklin:

"Did the Medical Society of the District of Columbia at its special meeting on June 30 consider the status of the special medical cooperative established by employees of the Home Owners' Loan Corporation? If so, will you not let me know at once the result of the Society's deliberations? Will you not send me at the same time a copy of the minutes of the meeting at which representatives of the Home Owners'

Loan Corporation medical service association conferred with representatives of the Medical Society regarding the proposed medical service cooperative?

"Yours truly,"

Exhibit 199 is a letter from C. B. Conklin to Dr. William C. Woodward, dated July 6, 1937:

U. S. EXHIBIT 199

"Dear Doctor Woodward:

"At the special meeting of the Society held on June 30 the matter of the medical cooperative for the Home Owners' Loan Corporation was not discussed. Arrangements have been made, as you will see, in the transcript of the minutes of the joint meeting with representatives from the Home Owners' Loan Corporation for a committee from the Society to meet with representatives of the cooperative project at a future date. Dr. F. X. McGovern is the chairman of the committee from this Society.

"Assuring you that it will always give us pleasure to keep your office fully apprised of any future developments, I am

"Sincerely yours,

"C. B. Conklin."

Mr. Levin:—I shall now read from minutes of the meeting of the executive committee of the Medical Society of the District of Columbia held Monday evening, July 12, 1937, at 8 p. m.:

"Present, Drs. Borden, Chipman, Holden, Hoce, Macatee, McGovern, Neill, Reed," spelled R-e-e-d, John A. Reed, E. Hiram Reede, Ruffin, Schreiber, Templeton, Yater, Conklin, and *Preston, *Sprigg and *Wells.

"(*) In attendance after the meeting started."

"Dr. F. X. McGovern, Chairman of the Subcommittee that was appointed to confer with representatives from the Group Health Association, Inc., was recognized. He made a motion that his report be given preference over the other agenda for this meeting, and that it be heard at this time. Duly seconded and adopted.

"For the information of the new members of the Executive Committee, Dr. McGovern outlined the prepayment medical care plan that has been set up by the Home Owners' Loan Corporation, stating that the Executive Committee had appointed a subcommittee to meet with the Committee on Medical Economics to study the prospectus and bring a report back to this committee. A report, which was prepared by Dr. J. Russell Verbyrck, who was then the Chairman of the Committee on Medical Economics, was approved in principle by the Executive Committee at a subsequent meeting. Since that time the subcommittee has met and studied and reviewed supplementary plans by Dr. Verbyrck, which Dr. McGovern offered as a report to the Executive Committee tonight.

"Dr. H. C. Macatee interpolated, for the information of the new members of the Executive Committee, that upon the adoption in principle of the report of the Subcommittee, the Subcommittee was given instructions to negotiate on the basis of that report with the medical service corporation, and this supplementary report is now made to gain alternative instructions.

"(Copy of Dr. Verbyrck's letter, dated July 12, 1937, appended hereto.)

"The Secretary made a motion that this letter be accepted as the report of the Subcommittee and be approved in principle."

That was seconded right there.

Now I turn to that letter which was moved to be the report of this committee:

"July 12, 1937

"Dr. F. X. McGovern, Chairman,

"Special Subcommittee of the Executive Committee on Cooperative Medical Care,

"Dear Dr. McGovern:

"I have no longer any official status, but I am deeply interested in the entire subject, and since I was the author of the original report which has been approved in principle by the Executive Committee, I ask your leave to submit some further thoughts with the hope that they may be of some slight help.

"The present H. O. L. C. corporation is only a minor consideration: (a) Either innumerable others will follow or (b) a large all-embracing organization will succeed all smaller enterprises. The first eventuality is not of great concern to us. Competition will kill them and since they cannot be large enough to supply a proper quality of medical care or hospitalization on their own account subscribers will gradually withdraw. Also the Medical Society by its present control over its members and, through them, of the hospitals can adequately fight (if it is so desired) these small units. (Various methods which are more or less practical will be later detailed.)

"However, if the second eventuality should occur, and one single large cooperative to take in all government employees should be formed, the considerations are entirely different and we must be prepared to admit the following:

"1. With size and a single large cooperative its financial success is assured.

"2. It can secure enough personnel of good quality, even if not the best, either local or imported, to assure its success from the patients' standpoint.

"3. Its own medical center and hospital can be obtained.

"4. It is not unlikely that a responsible organization could borrow all the money needed, even into the millions, through one of the administration agencies, such as P. W. A., just as many other projects have, without such an act making it a federal enterprise.

"The Medical Society must therefore adopt a definite policy toward the cooperative movement as a whole, and at once, without wasting a great deal of time on the H. O. L. C. project. The alternatives of policy are primarily:

"1. Approval of cooperatives as at present outlined.

"2. A laissez-faire attitude of seeing what will happen.

"3. Disapproval and active combat with all measures at our command.

"4. Disapproval of all other plans and the offer of prepaid medicine through the Medical Society (a) either as a Society subsidiary or (b) through a change in the Medical-Dental Service Bureau.

"The first of these, approval, is manifestly an impossibility. The second alternative threatens through inertia more than any other factor.

"Active opposition is possible at present. Whether it is advisable is another matter, unless some substitute plan can be suggested. Failure to place the cooperative on the approved list of the Medical Society would automatically forbid any consultations by members of our Society. Any full-time employees of the corporation could probably easily fail to be put on the courtesy list of the hospitals for one reason or another without the fact of his connection with a cooperative being even mentioned. In fact any combative methods would necessarily have to be camouflaged to the nth degree.

"The original plan submitted to the Executive Committee envisioned the aid of the Medical Society in the formation of the cooperatives along ethical lines and their continuous active supervision, insisting above all upon free choice of physicians. All cooperative corporations would be financially and administratively independent except for the control exercised by the Central Board elected by the Medical Society.

"It would now appear that a better plan might be a much more ambitious one, namely, the formation of our own complete organization for the distribution of prepaid medical care as a distinct unit competitive with any other organization that may be formed.

"This is the plan which Dr. West made it clear he favored as having the greatest chance of success. He made the further suggestion that our own Medical-Dental Service Bureau could be changed to take over the plan. I believe that none of us had previously thought of this solution and I personally believe that it has great possibilities.

"The Bureau has done great work in allowing patients to budget their medical, dental and hospital care. It has also acted as the clearing house for the Central Admitting Bureau partial-pay patients. It has just about broken even on the 10 per cent allowed but it would not have been able to carry on had it not been for the C. A. B. business."

That is Central Admitting Bureau, I suppose.

"The Bureau has about reached its peak of volume of work and it would appear that various factors might even tend to start it on the down grade. Therefore, it would seem that our having a working organization with personnel, quarters, etc., which might with the necessary changes function at any time, is a most fortunate thing.

"Group Hospitalization is also vitally affected by the inception of cooperative medicine.

"May I offer the earnest suggestion to your committee that you request a joint meeting with the Board of the Medical-Dental Service Bureau and the Board of Group Hospitalization, Inc., with a view to discussion of the factors affecting all and the possible formation of definite constructive plans.

"Very truly yours,
"J. Russell Verbrycke Jr."

THE COURT:—That is Exhibit 292.

(Copy of letter, Verbrycke to McGovern, dated 7/12/1937, heretofore marked as Government Exhibit 292 for identification was received in evidence.)

Mr. Kelleher:—Exhibit 292 is a copy of the report which Mr. Lewin has just read, which is from the files of the American Medical Association and bears on it the stamp, "File, Sep. 1, 1937, W. C. W.," and one of the girls in his office testified that it was the stamp placed on the mail received in his office.

I shall now read Exhibit 152, which is an original letter from the defendant Olin West to Dr. J. Russell Verbrycke, dated July 12, 1937:

U. S. EXHIBIT 152

"Dear Doctor Verbrycke:

"Our telephone conversation this morning was not altogether satisfactory for the reason that I could not hear you very well.

"Since the meeting held at the Metropolitan Club in Washington the other evening, I have given a little more thought to the matters that were discussed and have come to the conclusion that I offered one suggestion for the consideration of the Medical Society of the District of Columbia that it was not altogether wise to offer. I stated, in effect, that if I were a member of the committee of the District society, I should want to consider the advisability of organizing a sort of cooperative movement under the auspices of the society to offset the effect of the cooperative movement that is now being promoted by certain agencies in Washington. Having thought the matter over more carefully, I have come to the conclusion that that was a poor suggestion to offer, for the following reasons:

"First, I do not believe that the District society could organize any sort of cooperative scheme without establishing a relatively low income limit for those who might be included among the beneficiaries of the scheme. It is my understanding that the so-called H. O. L. C. cooperative does not intend to establish any particular income limit, but that the higher paid officers among the employees of that corporation are to be included in the cooperative scheme. Certainly the District society could not afford to undertake any sort of plan under which persons enjoying relatively large incomes would be included. Secondly, if the Medical Society of the District of Columbia should attempt to organize

and operate a cooperative movement, it would at once give endorsement to the principle of collective bargaining, which, in my opinion, cannot be properly applied to medical service.

"Since I returned to the office this morning I have talked with Dr. Woodward and with Dr. Leland, both of whom expect to arrive in Washington on Wednesday morning in the hope that they may be able to be helpful in some way to the committee of the District medical society. Dr. Woodward seems to be inclined to believe that the cooperative movement now being promoted in Washington might be successfully opposed on the ground that when it goes into operation it will be a corporation engaging in the practice of medicine. As you know, court decisions in several states have specifically declared the practice of medicine by a corporation to be illegal.

"I was delighted to see you while I was in Washington and to have the privilege of meeting with the members of the group at dinner at the club. I am sorry indeed that I could not offer some suggestion that might be more helpful to your committee, but I hope that Dr. Woodward and Dr. Leland will be able to be of some assistance.

"With most cordial good wishes, I am,

"Very truly yours,
"Olin West."

Mr. Lewin:—Continuing the reading from the minutes of the executive committee of the District Medical Society of July 12, 1937:

"Dr. Hooe"—"He thought the plan discussed with Dr. West offered great possibilities.

"Dr. McGovern, in answer to why the Subcommittee had not met with the Group Health Association representatives up to this time, said that his committee did not feel that it was ready to meet until it had something concrete to offer. He stated that within the past week Dr. Olin West, Secretary of the American Medical Association, was in the city and met with the committee and it was felt that very important information was obtained through this meeting. He added that he had a telegram from Dr. West, stating that Drs. W. C. Woodward and R. G. Leland (the latter Director, Bureau of Medical Economics) of the American Medical Association would be in Washington Wednesday morning of this week."

"Dr. Thomas E. Neill pointed out that the subcommittee was appointed on June 30. The Chairman of the committee as constituted did not accept the appointment and Dr. Neill appointed a new chairman, Dr. McGovern, to take the place of a member who did not want to serve. He was of the opinion that the committee should have something concrete to offer when they meet the representatives of the Group Health Association. He said he gained, personally, a lot of information from the conference held with Dr. West. He felt that the subcommittee should meet with the Board of Trustees of the Health Association and then in the fall, at the first business meeting of the Society, some concrete recommendation could be adopted."

"Dr. A. Arthur Hooe, as Chairman of the Compensation, Contract and Industrial Medicine Committee, would call attention to the fact that by fall this thing (the Group Health Association, Inc.) would be running very smoothly. He felt that there was no time to lose in dealing with the matter. Dr. Hooe was of the opinion that the subcommittee should do its work and do it promptly, and come back with something definite to the Executive Committee to recommend to the Society at a meeting to be held."

"Dr. McGovern added that his committee did not know—"

Mr. Leahy (interposing):—Why not read it all so that they get it?

Mr. Lewin:—I think they will get it.

Mr. Kelleher:—I thought that was agreed.

Mr. Lewin:—I thought we had that arrangement with Mr. Leahy in the interests of everybody, but—

Mr. Leahy:—Well, I know, but you pick these men out as though they were the only ones who talked.

Mr. Lewin:—Oh, no. I am perfectly willing to stipulate.

Mr. Leahy:—It was a running fire of talk from everybody in the committee.

Mr. Lewin:—I am perfectly willing to stipulate.

THE COURT:—Well, you may read it.

Mr. Lewin:

"At this point Dr. Ruffin suggested that, for the benefit of Dr. Sprigg, the portion of the report of the Subcommittee dealing with the recommendations he read. This was done by Dr. McGovern.

"Dr. McGovern added that his committee did not know just what the attitude of the Executive Committee of the Society would be; whether to fight this thing with the weapons at hand or possibly set up an organization to combat it. The committee felt that some definite instructions should be given along that line."

"Dr. Hooe said he was of the opinion—"

Mr. Leahy (interposing):—Why not read what the chairman, now, said?

Mr. Lewin:—Very well. We are just going back on our arrangement we made. I think we were doing very well.

THE COURT:—I think I have indicated I—

Mr. Lewin:—All right; let me read it.

THE COURT:—Provided that while you were reading it he requested you go on and read certain parts.

Mr. Lewin:—All right.

THE COURT:—And you may do so. I think that is the best way.

Mr. Lewin:

"The Chairman said it was his understanding that the subcommittee had the authority to meet with representatives of the Home Owners' Loan Corporation for the purpose of getting from them all of the data they could; not to go to them with any plan or proposition but to get information and to bring it to the Executive Committee and the Society for approval.

"The Secretary, at this point at the request of Dr. McGovern, read 'Suggestions for agenda for joint meeting of the Subcommittee of the Executive Committee of the Society, with the Committee from the H. O. L. C.' (Copy appended hereto.)"

Mr. Leahy:—Is it there, Mr. Lewin?

Mr. Lewin:—"The Chairman"—Yes, sir.

Mr. Leahy:—Leave the copy there so we can see what they were going to talk about.

Mr. Lewin:—Have you got a copy of it?

Mr. Leahy:—No; I just got this photostat.

Mr. Lewin:—Well, I don't believe I will stop to look for that now, if you don't mind.

Mr. Leahy:—All right. I am trying to find it.

Mr. Lewin:—I would like to do your work for you, but—

Mr. Leahy:—Well, this is yours, you know, not mine.

Mr. Lewin:—It isn't mine at all. This is your clients'.

Mr. Leahy:—You are offering this, you know.

Mr. Lewin:—I certainly am offering it.

Mr. Leahy:—Well, then, go ahead and read it.

Mr. Lewin:—Well, that is what I was doing when I was interrupted.

Mr. Leahy:—No; you are just picking out certain parts of it.

Mr. Lewin:—I think your remarks are highly improper.

Mr. Leahy:—If your Honor please, if I stated, of course, that certain portions I wanted read—

Mr. Kelleher:—Under the arrangement we had—

THE COURT:—Just a minute.

Mr. Kelleher:—As you indicated this morning—

Mr. Lewin:—What are you trying to indicate, something unfair in the presentation of this?

Mr. Leahy:—Why argue with me then if under the arrangement I offer it?

THE COURT:—Just a minute, please.

Mr. Leahy:—Very well.

THE COURT:—We are just losing time. This does not get us any place.

Mr. Leahy:—I think if you go right through and read it, if your Honor please—

THE COURT:—While you are reading it, at the time when he indicates parts he wants read they should be read.

Mr. Lewin:—Very well.

THE COURT:—I believe that is best. At least, that was the rule I laid down.

Mr. Lewin:

"The Chairman, for the benefit of the committee, stated that he had information which would indicate that the Ross-Loos Plan, which split the California State Medical Society, was not progressing so well; that the wind was blowing the other way. He was informed that the Ross-Loos Corporation was resorting to other means of business to make up their deficit.

"Dr. Macatee pointed out the fact that the Group Health Association itself was a small group, but there were possibilities of it involving other federal employees.

"Dr. Hooe said he was of the opinion that when this subcommittee goes to the representatives of the Home Owners' Loan Corporation it should carry nothing binding upon the Society. He pointed out that what is done in the Executive Committee is not binding upon the Society. He would suggest that an early meeting of the Society be called to present the proposition. He thought the consensus was that the corporation as it now stands would not be countenanced by the Society. He felt that there were so many substitutes that could be offered and therein lies the one hope for defeating the plan."

I would omit page 4. Do you want it read?

Mr. Leahy:—Yes.

Mr. Lewin:

"The Secretary stated that when the subcommittee goes down to meet the representatives of the Group Health Association there was no one better than Dr. Macatee to be the spokesman and the rest of the committee should be observers.

"Dr. John F. Preston would inquire if there was anything in the setup which would allow the Home Owners' Loan Corporation to put their money in such an enterprise?

"Dr. Macatee said that he was talking to a patient who was an attorney in the corporation and he said it could be done perfectly legal, and if his recollection was correct, that the papers had gone over this attorney's desk. They could do anything not contrary to the law and constitution for the benefit of their employees. In respect to the duties of the Subcommittee, Dr. Macatee pointed out that according to the letter which was addressed to the members of the Group Health Association, that it was clear that at least one medical man had made a contract with the group, and that they are on the verge of going into action. It had been thought by the Subcommittee that we could probably go

before the Trustees and we could ask them what their prospectus meant when it said that they wished to enter into the fullest cooperation with the Medical Society of the District of Columbia, to ask for representation on their board in an advisory capacity, and they wished to do their work in an harmonious way. We thought we might say to the Board of Trustees that the Medical Society had looked upon the organization with some concern and that we wondered if the Trustees sensed the threats involved to the success of their enterprise by the fact that their subscribers would not in the long run have the free choice of physicians. Whether they understood that as soon as some grave medical problem arose among the employees they would not follow the usual human instinct and say 'We don't want these hired men, we want the best'; whether that would not be disruptive of the whole plan. The trustees are laymen. . . . Whether in view of those facts and other facts they might not feel that the principles of organized medicine, that the free choice of physician is essential to the success of any proposition, that that may convey something looking to the entire medical profession of the District of Columbia as a source of the medical and surgical service they may need. If they could consider that we would be glad to take it up with the Medical Society and see what could be worked out. It is for this committee to decide whether it is likely that any good will come from such a meeting."

"The Secretary was of the opinion that the Subcommittee should be sent down to ascertain the facts and have Dr. Macatee speak along the lines which he just did. The lay members of the Board of Trustees would in all probability immediately understand that they haven't anything comparable to what the Medical Society may possibly offer in these few \$3,000 a year men they may be able to pick up outside of the organized medical profession. Further, Mr. Penniman, Mr. Zimmerman and Dr. Brown were given to understand that a committee would be glad to meet with them. He felt it would be undiplomatic to back out now.

"Dr. Ruffin offered an amendment to Dr. Conklin's motion to the effect that the Subcommittee, of which Dr. F. X. McGovern is chairman, be instructed to present arguments along the lines just outlined by Dr. Macatee and bring back a report to the Executive Committee with a view to a meeting being called of the Society at an early date.

"Dr. Hooe suggested to incorporate in the amendment the time for the meeting of the committee and the Society—in the very near future.

"At this point Dr. Conklin and Dr. Ruffin withdrew their motion and amendment.

"Dr. Macatee made a motion to the effect that the supplementary report of the Subcommittee be received and be held on the table for future consideration, after the report of the Subcommittee. Seconded and adopted.

"Dr. Ruffin made a motion that the Subcommittee be instructed to meet with the Home Owners' Loan Corporation representatives, to be addressed by Dr. Macatee along the lines, discuss, and bring a report back as promptly as possible to the Executive Committee with a view to a meeting of the Medical Society. Seconded and carried.

"Dr. Wallace M. Yater would offer an amendment to the effect that the Subcommittee bring back its report after it confers with the H. O. L. C. representatives and also after it has had sufficient conference with Drs. W. C. Woodward and R. G. Leland. In fact Dr. Yater felt that the Subcommittee should confer with Drs. Woodward and Leland before and after they go to the Home Owners' Loan Corporation, to get advice as to how to proceed. No second to this amendment.

"Dr. Ruffin was of the opinion that it could be left to the committee to do this without any specific instructions."

Now, for a long time now we have a lot about Subcommittee on Communicable Diseases. Would you care to have that read to the jury?

Mr. Leahy:—No, no.

Mr. Lewin:—I do want this, page 10, in the middle of the page:

"At this point Dr. F. X. McGovern, Chairman of the Subcommittee of the Executive Committee appointed to prepare an approved list of organizations, groups and individuals, engaged in the practice of medicine within the District of Columbia, in accordance with Chapter IX, Article IV, Section 5 of the Constitution, was recognized. He read the provision of the Constitution, as follows:

"No member of the Society shall engage in any professional capacity whatsoever with any organization, group or individual, by whatever name called or however organized, engaged in the practice of medicine within the District of Columbia or within 10 miles thereof, which has not been approved by the Society."

"The Executive Committee is authorized and directed to prepare an approved list of organizations, groups and individuals, by whatever name called and however organized, engaged in the practice of medicine within the District of Columbia or within 10 miles thereof, and the same shall be kept in the office of the Secretary-Treasurer. Before any such organization, group or individual can be placed on the approved list of the Society, such organization, group or individual, or the member of the Society proposing professional relations therewith, shall submit to the Compensation, Contract and Industrial Medicine Committee such evidence as the Committee or the Society may require showing the character, activities, financial condition and ethical standards of said organization, group or individual, and after considering the same, said committee shall make a report of its investigation and findings to the Executive Committee for such action as it may deem necessary."

"Dr. McGovern stated that he requested the various county medical societies in Virginia and Maryland, within 10 miles of the District of Columbia, to send him a list of their membership. He was not very successful by letter and intended to contact the Secretaries personally. He added that there were a few physicians practicing medicine in the District of Columbia who were not on the rolls of the Society. The Society's office was busy at the present time checking the list of physi-

cians and surgeons as classified in the newest telephone directory and the Commission on Licensure had been approached to obtain a list of all licentiates in the District of Columbia.

"The Chairman, Dr. Sprigg, stated that he requested a list of the licentiates and the Society's office was informed that the records of the Commission on Licensure would be available if the Society could supply clerical help to type the list.

"Dr. McGovern read a proposed list of approved organizations, groups and individuals.

"Dr. Macatee suggested that the words 'employed by' be substituted for the words 'connected with' in item 10. With this change the list was approved, upon motion, duly seconded and adopted, as follows:

"1. All members of the Medical Society of the District of Columbia.

"2. Medical staffs of all hospitals, institutions and clinics, each member of which has been approved by the Medical Society of the District of Columbia.

"3. The United States Government Medical Personnel on duty in the District of Columbia, or within 10 miles thereof, i. e., the United States Army, Navy, Public Health Service, and the Veterans' Administration.

"4. The Health Officer and attached medical personnel.

"5. Membership of the District of Columbia Dental Society.

"6. Membership of the Homeopathic Medical Society.

"7. Members of the Montgomery County (Md.), Prince Georges County (Md.), Fairfax County (Va.), and Arlington County (Va.) Medical Societies, who reside within 10 miles of the District of Columbia.

"8. Members of the Alexandria Medical Society.

"9. The following compensation clinics:

Operated by

Farragut Medical Clinic.....Frank E. Gantz, M.D.

First Aid StationArch L. Riddick, M.D.

Harry M. Lewis Clinic.....Harry M. Lewis, M.D.

Market Compensation Accident Clinic.....M. J. Kossow, M.D.

Northeast Insurance Clinic.....G. Henry Hawson, M.D.

Union Market Workmen's Compensation Clinic.....Maxwell Hurston, M.D.

Washington Industrial Accident Clinic.....Edward Clark Morse, M.D.

Washington Medical Building Workmen's Clinic.....Charles S. White, M.D.

"10. All medical personnel employed by the Federal or Municipal Governments within the District of Columbia or within 10 miles thereof.

"11. Membership of the Medico-Chirurgical Society (colored medical society).

"12. Membership of the Robert T. Freeman Dental Society (colored dental society).

"Dr. Raymond T. Holden Jr. inquired as to the personnel (medical) of the proposed Group Health Association, Inc.

"Dr. Hooe pointed out that it was a separate individual corporation and would have to be approved as a single unit. As a matter of information, Dr. Hooe would inquire if he was right in the assumption that this approved list would not have to be submitted to the Society but from tonight on would be filed in the Secretary's office for reference.

"The Chairman ruled that according to the wording of the Constitutional provision that would be the understanding.

"Dr. Hooe made a motion to the effect that the Secretary of the Society be directed to write a short letter to every member of the Society, calling attention to this Constitutional amendment, quoting it in the letter, and informing them that the approved list (which shall be added in the letter) is now available in the Secretary's Office and is in force; and further that any violation thereof they will be liable for. This letter to be sent registered mail. Seconded.

"The Secretary offered an amendment to the above motion to include that the list as read by Dr. McGovern tonight be enclosed, and not the individual names of physicians. Seconded and accepted.

"In the discussion of the above motion it was pointed out that the cost of registering a letter,"

Mr. Lewin:—I am on page 12. There was mention of the agenda. I think you gentlemen wanted the agenda. I am prepared to read it.

"SUGGESTIONS FOR AGENDA FOR JOINT MEETING OF COMMITTEE REPRESENTING THE EXECUTIVE COMMITTEE OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, WITH THE COMMITTEE FROM THE HOME OWNERS' LOAN CORPORATION

"1. Attempt to be made by pointed questions to obtain a copy of written contract between the H. O. L. C. Medical Service and its clients.

"2. The establishment of attitude of H. O. L. C.; should the Medical Society of the District of Columbia offer to furnish in its entirety, through its members, allowing free choice of physician, the entire proposed medical service, regular and consultant.

"3. Would the H. O. L. C. consider giving up its present preparations for giving medical service through full-time \$3,000 per annum doctor employees should the Medical Society advocate the enlargement of the facilities that are already at hand in its Medical-Dental Service Bureau, for the purpose of taking care of large groups of Governmental employees, on a mutually approved prepayment plan?

"GENERAL IMPRESSIONS AS TO PROPER METHODS OF CARRYING ON THE JOINT MEETING

"1. Before the date of the meeting, objectives should be definitely determined and mutually agreed upon by all committee members.

"2. Such propositions as are to be offered, with the thought in mind that they are but tentative and are but 'feelers,' should be done in an orderly manner and by selected spokesmen.

"3. There should be no general speaking by all members of the committee, as this but leads to confusion and to perhaps defeat of the attainment of some definite objectives.

"Finally, the committee should be guided by words of wisdom that were given by Dr. Olin West at a recent meeting, and should be governed by what has actually taken place throughout the states, i. e., in the way of

prepayment plans advocated, installed, and successfully operated by components of state medical organizations. In other words, there should be no denying of what has definitely taken place. The teachings of experience should be weighed against the visionary and impractical promulgating of views and attitudes established by organized medicine, which in many instances constituent bodies have flauntingly discarded. The turning of public opinion against the California State Medical Society in its fight against the Ross-Loos Clinic is well worthy of thought. It would seem that in the Nation's capital that any active campaign by organized medicine for the purpose of denying the present organizers the use of their personnel might have, to say the least, very undesirable implications. The utmost diplomatic handling is required."

Mr. Kelleher:

It is a carbon copy of a letter written by Dr. West to Dr. C. B. Wright, 78 South Ninth Street, Minneapolis, dated July 14, 1937. As his Honor has said, the first three paragraphs deal with matters not relevant to the issues in this case.

"Dear Dr. Wright: I had a long conference with a committee of the Medical Society of the District of Columbia about the cooperative movement that is being promoted by groups of government employees. The District Society is apparently very much agitated about this matter but, as a matter of fact, there was very little that I could offer them in the way of suggestions as to what they might or should do. In accordance with authorization given by the Board of Trustees, I have asked Dr. Woodward and Dr. Leland to go to Washington for the purpose of conferring with the Medical Society of the District of Columbia, and they are to have a conference with official representatives of the Society in Washington today.

"There seems to be a lack of authentic information concerning the exact nature of the cooperative movement. A man in rather high official position in the H. O. L. C. was quoted in Washington as having specifically stated that the H. O. L. C. is not to finance the cooperative movement. Information from other sources, however, is exactly to the contrary. Nobody has as yet been able to get a copy of the contract that may exist between the cooperative organization and the Home Owners' Loan Corporation, nor has any one been able to get a copy of the contract that will be entered into between the cooperative and those who purchase its contract. I was told that 2,000 or more government employees have already signed up as members of the cooperative, and a few minutes later I was told by a Washington physician that employees in certain departments had refused to have anything whatever to do with the movement. It seems almost impossible to get information in Washington that you can tie to. I have never in all my life seen such a situation as now exists. I think Dr. Woodward has about come to the conclusion that the only way to fight the cooperative movement among government employees is to wait until the facts can be definitely discovered and then resort to court procedures in an effort to have the cooperative declared a corporation engaged in the practice of medicine. I am not yet come to any definite conclusion in my own mind as to whether or not this would be a wise procedure."

And the last three paragraphs of the letter deal with other matters.

Exhibit 178 is a telegram from Dr. William C. Woodward to Dr. J. Russell Verbyck Jr., the Farragut Medical Building, Washington, D. C. It is dated July 13, 1937, and reads as follows:

"Leland and I arrive Capital Limited Wednesday stop Leave it to your judgment to arrange a conference at which all essential persons will be present stop It will apparently be necessary for the Society to employ counsel to guide it and presence of that counsel at conference is essential stop If regular counsel is not available his representative or other counsel should be present stop Please arrange so that we can leave Washington not later than Thursday afternoon, July 15 stop Time of conference immaterial to us. We shall be at the Mayflower.

"William C. Woodward."

Mr. Kelleher:—Exhibit 200 is a memorandum from Drs. Woodward and Leland to Dr. West, dated July 16, 1937:

"A prospectus for a plan for a Cooperative Medical Service on a periodic payment basis for Federal employees and their families in Washington was circulated some time ago. The prospectus is not dated and the time of its issue is unknown. It was circulated anonymously. The plan proposed was to make available to Federal employees in Washington, and to their families, adequate medical care, both preventive and curative; to provide this care at moderate cost; and to place that cost on a regular, budgetable basis within the means of the group to be served.

"A certificate of incorporation for the Group Health Association, Inc., was executed February 19, 1937, by W. F. Penniman, R. T. Berry, and Pearl B. Murphy, and subsequently recorded in the office of the Recorder of Deeds of the District of Columbia.

"W. F. Penniman is one of the assistant general managers of the Home Owners' Loan Corporation and has charge of District No. 6. The occupations of R. T. Berry and Pearl B. Murphy are unknown, but it is understood that they are officers or employees of the Home Owners' Loan Corporation.

"An amendment to the articles of incorporation was executed April 21, 1937, for the sole purpose of increasing the number of the Board of Trustees, and the amendment was filed in the office of the Recorder of Deeds of the District of Columbia.

"The Association is organized as a corporation not for profit. Membership is limited to employees of any branch of the United States Government other than officers or enlisted men of the United States Army and Navy. Nothing in the articles of incorporation limits the Association's activities to the District of Columbia.

"Among the purposes of the Association are the following:

"(1) To provide the service of physicians and other medical attention and any and all kinds of medical, surgical, and hospital treatment for the members of the Association and their dependents.

"(2) To furnish all forms of hospital service to members of the Association and their dependents.

"(3) To construct a clinic and medical office building.

"(4) To construct and operate a hospital for members of the Association and their dependents.

"(5) To operate a drug store or pharmacy and to provide drugs and remedies for members of the Association and their dependents.

"(6) To provide nurses for members of the Association and their dependents.

"(7) To give to members of the Association and their dependents all forms of care, treatment, or attention that may be required by the sick or in the prevention of disease.

"The articles of incorporation are silent as to the sources from which the Association is to obtain funds for organization and operation, except in so far as they say that the corporation is to have no capital stock but is to be an association controlled by its members and that all members whose dues have been paid if and when the Association is liquidated shall have the right to share in the distribution of its assets.

"The prospectus referred to above says that the plan should be launched and publicly announced at a dinner or other similar meeting at which representatives of the press should be in attendance, and that immediately thereafter all Federal employees should be informed of the plan through meetings and circulars and should be asked whether they would be willing to participate. If the response was favorable, the campaign was to start to obtain the necessary capital through advance payment of 'enrolment fees.'

"It is understood that a meeting of some kind was held by the organizers of this movement at which, it has been alleged, Secretary of Labor Perkins, Secretary of Agriculture Wallace, and Secretary of the Interior Ickes, and other prominent government officials were present. This however was apparently not the meeting referred to above and, so far as is known, no public announcement has been made of the organization of the Group Health Association.

"It is understood that membership so far has been limited to officers and employees of the Home Owners' Loan Corporation.

"The Home Owners' Loan Corporation, according to an announcement sent out over the signature of Mr. W. F. Penniman, President, and R. T. Berry, Secretary-Treasurer, April 15, 1937, has entered into a contract of some kind with the Group Health Association, Inc. The announcement reads in part:

"Under the terms of the contract between your association and the Home Owners' Loan Corporation, two persons are selected by the Federal Home Loan Bank Board who shall serve on the Board of Trustees."

"The existence of such contract and the control of the Association by the Home Owners' Loan Corporation through the Federal Home Loan Bank Board is shown by an announcement subsequently issued by W. F. Penniman and R. T. Berry, said notice having been issued, it is believed, some time during the first ten days of July, in which it is said:

"The by-laws of the Association have been adopted by the Board of Trustees of the Group Health Association and approved by the Federal Home Loan Bank Board."

"It is understood that the Home Owners' Loan Corporation has aided and is aiding to finance the launching of the Group Health Association, Inc., through a loan or loans, and through a contract or contracts whereby the Association, through its officers will undertake to perform certain services for the Home Owners' Loan Corporation, but the nature of those services is not known. All efforts to procure a copy of the contract agreed upon between the Home Owners' Loan Corporation and the Group Health Association, Inc., have been unsuccessful. It has been stated by Mr. W. F. Penniman, an official of the Home Owners' Loan Corporation, and president of the Group Health Association, Inc., that the Home Owners' Loan Corporation has appropriated an initial sum sufficient to carry on the Association for two years because of some hypothetical benefit the corporation is to obtain from the activities of the association. Furthermore, when asked whether the Home Owners' Loan Corporation could not, for purposes of study of health, appropriate money to the Group Health Association, Incorporated, and whether the corporation could not appropriate for services rendered, or appropriate in case of emergency without any government supervision, Mr. Penniman admitted that that was the case.

"The Group Health Association, Inc., is obnoxious to law for the following reasons:

"(1) It proposes to practice medicine through physicians hired by it, although the Association is not licensed to practice and could not be so licensed.

"(2) It proposes to practice dentistry through dentists hired by it, although it is not licensed to practice dentistry and could not be so licensed.

"(3) It is engaged in the business of insurance, without so far as available records show being qualified to engage in such activities. It is obnoxious to public policy for obvious reasons."

Mr. Lewin:—Exhibit 45 is a mimeographed copy, or a mimeographed letter signed by C. B. Conklin, M.D., Secretary, under the letterhead of the Medical Society of the District of Columbia, dated July 29, 1937, and addressed to "Dear Doctor." It reads:

"It may have come to your attention that there is an organization or organizations that are interested in gaining medical personnel. Your attention is called to Chapter IX, Article IV, Section 5 of the constitution, quoted in full.

"You are particularly urged to submit to the Compensation Contract and Industrial Medicine Committee, pursuant to the constitution, any and all contracts, written or verbal, under which you may contemplate giving your services. Very truly yours, C. B. Conklin."

The second page of this exhibit is a mimeographed letter from C. B. Conklin, Secretary, dated July 29, 1937, under the letterhead of the Medical Society of the District of Columbia. It reads as follows:

"Dear Doctor. Pursuant to action of the Executive Committee, held on the evening of July 12, 1937, and in fulfillment of Chapter IX, Article IV, Section 5 of the constitution, your attention is hereby called to the list of organizations, groups and individuals herewith enclosed. The approved list is on file with the Secretary's office. The amendment is now in force. Any violation thereof will make a member liable according to the provisions of the constitution:

"Chapter IX, Article IV, Sec. 5:

"No member of the Society shall engage in any professional capacity whatsoever with any organization, group or individual, by whatever name called or however organized, engaged in the practice of medicine within the District of Columbia or within 10 miles thereof, which has not been approved by the Society."

"The Executive Committee is authorized and directed to prepare an approved list of organizations, groups and individuals, by whatever name called and however organized, engaged in the practice of medicine within the District of Columbia, or within 10 miles thereof, and the same shall be kept in the office of the Secretary-Treasurer. Before any such organization, group or individual can be placed on the approved list of the Society, such organization, group or individual, or the member of the Society proposing professional relations therewith, shall submit to the Compensation, Contract and Industrial Medicine Committee such evidence as the Committee or the Society may require showing the character, activities, financial condition and ethical standards of said organization, group or individual, and after considering the same, said committee shall make a report of its investigation and findings to the Executive Committee for such action as it may deem necessary."

"Very truly yours,

"C. B. Conklin, M.D."

Mr. Lewin:—And attached to the first page of this Exhibit 45 is a mimeographed copy of a list of approved organizations which has already been read, and which were approved by the committee on July 12, 1937.

Exhibit 201 is a letter from William C. Woodward, Director, to Dr. F. X. McGovern, dated July 26, 1937, and reads as follows:

"Dr. Dr. McGovern. I shall appreciate it very much if you will let me know what the Medical Society of the District of Columbia or your subcommittee has done, and what its present plans are with respect to the Group Health Association, Inc. The situation is one in which the entire medical profession of the United States has a deep interest, and I would like therefore to be kept in as close touch with it as is possible.

"Yours truly,

"William C. Woodward."

Exhibit 179 is a carbon copy of a letter from Dr. Woodward to Dr. McGovern, dated July 17, 1937:

"Dear Dr. McGovern:

"In compliance with your request, I send you herewith (1) the articles of incorporation of the Group Health Association; (2) a copy of the prospectus sent out by the promoters of that association; (3) the notice sent out by William F. Penniman, president of the association, with reference to the first meeting and election of officers, and (4) a report sent out by the same party concerning the activities of the Association.

"I have retained the original certified copy of the articles of incorporation and have made and retained copies of the prospectus, the call for the first meeting, and the subsequent report.

"If there is anything I can do with respect to this matter, please call on me.

"Yours truly,

"Director."

Mr. Lewin:—I shall read from the minutes of the Special Meeting of the Executive Committee of the Medical Society of the District of Columbia, held Tuesday evening, July 27, 1937, at 8 p. m.:

"Dr. William M. Sprigg, Chairman, presiding.

"Present: Drs. C. N. Chipman, A. C. Grey, Raymond T. Holden Jr., R. Arthur Hooe, F. X. McGovern, John F. Preston, John A. Reed, Sterling Ruffin, Henry R. Schreiber and C. B. Conklin. H. C. Macatee."

Now, I am going to pass over the first and second and half of the third page because they deal with other matters than with which we are now concerned.

"Dr. F. X. McGovern, Chairman of the Subcommittee, that had been appointed to make contact with the Home Owners' Loan Corporation Medical Unit, now was called upon to make a report.

"He opened his remarks by stating that pursuant to recommendations made at the last special meeting of the Executive Committee, he had prepared a letter which was sent to Mr. William F. Penniman. In the letter request was made for copies of (1) contract with the Home Owners' Loan Corporation; (2) adopted constitution and by-laws; (3) form or forms of application for membership; and (4) any form of contract or agreement setting forth the service to be rendered to members and their dependents."

"Dr. McGovern stated that Mr. Penniman had not given him a written answer. He had called him up and asked that he have luncheon with him at the Raleigh Hotel. On this occasion he frankly stated that he would give responses to the questions asked in the registered letter that had been received. The copy of the contract asked for, he said, he would have to refuse to exhibit. He thought the Medical Society's asking to see this contract was quite similar to going to Garfinkel's department store and asking them to show the contract they had with some firm with which they were doing business.

"Dr. McGovern then proceeded to read a prepared report, as follows:
"KNOWN FACTS IN RE THE HOME OWNERS' LOAN CORPORATION:

- "1. Corporation—Group Health Association, Inc.
- "2. In Home Owners' Loan Corporation with which it has a contract.
- "3. Mr. W. F. Penniman is president; Mr. R. T. Berry is secretary. Dr. Henry Rolf Brown is Medical Director.
- "4. Instituted presumably to give medical care (complete) to any and all members of the H. O. L. C. who may care to join in.
- "5. Nonprofit, voluntary, prepayment insurance organization.
- "6. Must be in some way related, possibly by contract to Home Loan Bank Board.

"7. President, Mr. Penniman, avoided replying by letter to an official letter from the Society to him.

"8. Mr. Penniman refused to give your committee a list of physicians employed by corporation.

"9. Articles of incorporation so worded that all Federal employees, except Army and Navy may belong.

"10. President, while he states that purpose of the corporation is to provide medical service to low-income individuals, at the same time admits that constitution and by-laws do not establish any income level.

"11. Invites attention to many other similar organizations in existence throughout the country and claims they do the job better than would otherwise be done.

"12. The lay members of the Board of Directors sincerely believe that they are performing a needed, helpful and humanitarian function for their employees, and apparently are firmly convinced that nothing that they are doing is in conflict with the established ethical principles of organized medicine.

"13. Dr. Brown is a physician, recently retired from the Veterans Bureau and is being paid a good (under the circumstances) salary as medical director. Licensed in the District of Columbia, May 21, 1937.

"14. Whereas the officials of the corporation express a desire to cooperate with the Medical Society of the District of Columbia, it is a fact that in the beginning and at all times there has been no real effort made to apprise the Medical Society of the District of Columbia of what they were undertaking. They have not considered (officially) the Medical Society of the District of Columbia during the formative stage of their organization; on the contrary, there seems to have been the desire to keep the matter confidential.

"15. Meetings with officials of the American Medical Association on two separate occasions convince us that the national organization is keenly interested in the whole affair and is solicitous as to how we will consider its relation to us locally and what policy the Medical Society of the District of Columbia will adopt in regard to it.

"16. What might be done:

- "1. Consider it unethical.
- "2. Control our own members in terms of the ethical requirements of our own constitution and by-laws.
- "3. Offer a substitute plan of our own.
- "4. Cope with the situation in the courts in terms of the local Healing Arts Practice Act.

"17. Your committee met with the Board of Directors of Group Health Association, Inc. The attitude of organized medicine in regard to the medical ethics in matters of this kind was fully presented to them. Quotations were read to them from the official code of ethics of the American Medical Association. Other relevant facts were presented. The only reply was made by a Mr. Loomis, member of the Board of Directors, to the effect that he hoped that the Medical Society would see fit to withhold final judgment until Group Health Association, Inc., had been in actual operation a sufficient length of time to practically demonstrate its purpose, its relation to the community and to the medical profession of the District of Columbia."

Mr. Lewin:—I will drop to the bottom of page 6, the next page:

"The secretary explained just what had been suggested by Drs. William C. Woodward and R. G. Leland at the time of their visit. It would seem that Dr. Woodward would advise quo warranto proceedings, which proceedings would require a district attorney or United States Attorney for the District of Columbia, who at least was not hostile, that the suit would be filed in his name. He saw many difficulties in following this up. Dr. Leland had given a sketchy verbal outline of a plan whereby a pool of money could be created and this could be built up by either the people in the lower income brackets or even in the higher brackets, and from this pool the care of the sick could be financed. The secretary stated that the very next morning after the meeting he wrote to Dr. Leland, asking for full details of this plan. Up to date he had received no reply. The secretary opined that the American Medical Association authorities certainly did not have any definite knowledge as to how to proceed in combating the immediate problem that was confronting the Medical Society of the District of Columbia."

Mr. Lewin:—Now, I shall drop down to the middle of page 7:

"A motion was made concerning the registered letter that was to be sent out with Dr. McGovern's committee's list of approved organizations, groups and individuals, engaged in the practice of medicine, to include the phrase 'to each of the hospitals,' in addition to all members. Seconded and adopted."

Mr. Lewin:—Yes, I will.

"Dr. Macatee, in continuing, read an excerpt from the latest issue of the Principles of Medical Ethics of the American Medical Association, having to do with the definition of free choice of physicians, as follows:

"The phrase 'free choice of physicians,' as applied to contract practice, is defined to mean that degree of freedom in choosing a physician which can be exercised under usual conditions of employment between patient and physician when no third party has a valid interest or intervenes. The interjection of a third party who has a valid interest or who intervenes does not per se cause a contract to be unethical. A 'valid interest' is one where, by law or necessity, a third party is legally responsible either for cost of care or for indemnity. Intervention is the voluntary assumption of partial or full financial responsibility for medical care. Intervention shall not proscribe endeavor by component or constituent medical society to maintain high quality of service rendered by members serving under approved sickness service agreement between such society and governmental board or bureaus and approved by the respective societies."

"The ambiguity of the situation was immediately apparent.

"Dr. Macatee said that he certainly did not read this at the time of the meeting with the H. O. L. C. unit. He did, however, read on that occasion extensively from the Principles of Medical Ethics under which the medical profession is bound, showing that the project as at present constituted could not be expected to be approved by the Medical Society of the District of Columbia, the local unit of the American Medical Association.

"Dr. Macatee was rather inclined to think that there should be no hasty action taken at this time and that he would recommend that the four possible solutions as prepared by the subcommittee be not read before the Medical Society. He too thought that it might be possible to bring some accord with the Group Health Association."

Mr. Kelleher:—I am now reading from the "Minutes of the Special Meeting of the Medical Society of the District of Columbia," held Thursday evening, July 29, 1937, 8 p. m.:

"Dr. Thomas E. Neill, President, presiding.

"Present: Drs. J. Lawn Thompson, William J. Mallory, O. N. Chipman, F. X. McGovern, James A. Flynn, Prentiss Willson, A. P. Tibbets, John H. Lyons, William P. Herbst, Victor B. Rensch, Victor R. Alfaro, S. B. Muncester, Harry S. Lewis, Oscar Wilkinson, Herman E. Kirtledge, Isadore Lattman, Henry B. Gwynn, Joseph Horgan, J. Russell Verbyrke Jr. and other members to the number of about 150.

"Upon motion, duly seconded, the reading of the minutes of the preceding meetings was dispensed with."

Mr. Kelleher:—"The Executive Committee makes the following recommendations:

"That the chairman of the Executive Committee appoint three of its members to act as a subcommittee, they to add two members of their selection from the Society at large, for the purpose of further studying the Group Health Association, Inc., with a view of bringing back to the Executive Committee a solution concerning what the Society's attitude should be to the above Group Health Association, Inc., and to report to the Executive Committee at the next regular meeting.

"Dr. J. Lawn Thompson made a motion that the report of the Executive Committee be adopted. Seconded.

"Dr. Thompson, in discussion of the recommendation of the Executive Committee was of the opinion that if the report was to be made to the Executive Committee at the next regular meeting, it would probably be too late to do anything, for by that time the Home Owner's Loan Corporation plan will be in full action. He felt that a special meeting should be held in the near future; not only from the medical standpoint, but from the standpoint of the Chamber of Commerce and Board of Trade this should be considered."

I now desire to turn to page 3 and commence with the last paragraph on that page.

Mr. Leahy:—Go ahead.

Mr. Kelleher:

"Dr. McGovern was called upon to discuss the question. He stated that he was the chairman of the subcommittee of the Executive Committee that investigated this matter thus far. He brought out the fact that the purpose of this meeting tonight was to inform the membership of the situation and to familiarize them with the facts obtained to date with an idea of turning it over in the minds of the membership and arriving at some conclusion as to how the Society should act in the matter. He felt that it was apparent from the report that the Group Health Association was not willing to come clean. It was specifically stated that Mr. Penniman, its president, refused to comply in writing to an official communication addressed to him from the Society. In that letter four specific requests were made: that they submit a copy of any contract they may have between the Group Health Association and the Home Owner's Loan Corporation with the Federal Home Loan Bank Board; copy of their constitution and by-laws; and any contract that may be in existence in relation to the members of this corporation; and any other matter that would be of importance to the Medical Society. Dr. McGovern pointed out that the communication was sent by registered mail. Mr. Penniman called him by telephone asking that he have luncheon with him where these matters would be discussed. After consulting with officials of the Society Dr. McGovern accepted the invitation to meet Mr. Penniman at luncheon at the Raleigh Hotel. Dr. McGovern made it emphatic that he was not authorized to commit the Society in any way. Mr. Penniman was willing to give some of the information desired, but when asked for the contract between the Group Health Association and the Federal Home Loan Bank Board, he refused, stating that the Medical Society had no more right to ask for that than they would to go down

to Garfinkel's department store and ask to see a contract that the store had with an express company, for instance. Dr. McGovern felt that it was definite that they had some sort of contract and they are not desirous that anybody should see it. In this connection he would add that the American Medical Association, through Dr. W. C. Woodward, tried diligently, spending a whole day in the building of the Home Owner's Loan Corporation, going from office to office, trying to get a glance at the contract without success. Dr. McGovern felt that the contract itself did not interest the Medical Society as much as it did interest the A. M. A. If there is a connection between the Federal Home Loan Bank Board and the Group Health Association, and the Board is spending money, they are spending taxpayers' money which makes it a national entity. As far as the panel of doctors is concerned, Mr. Penniman said that he did not think it was appropriate for the Medical Society to have a list of the panels of physicians who have already been employed. He added that it is a well known fact that members of the Society have been approached. It also is a well known fact that doctors have been asked to come in from the outside and that Dr. Brown has talked to them.

"Dr. McGovern said that property had already been leased for the housing of the clinic on I Street, between Thirteenth and Fourteenth streets. There was no doubt in his mind that the lay members of the Board of Directors of the Group Health Association are thoroughly convinced that they are doing a splendid thing for their employees. He was further convinced that they are not doing anything that might be considered unethical by them."

And I will omit the balance of that page and go to the bottom of page 5:

"Dr. Prentiss Willson would inquire what information the committee had with respect to hospitalization of the patients who require hospitalization under the Group Health Association.

"Dr. McGovern stated that in the articles of incorporation they are going to give complete medical care and hospitalization. It would not be found out as to how they plan to do that. He pointed out that it is incorporated to include all Federal employees, except Army and Navy. He thought possibly they would have the free use of the local hospitals."

I will omit the next paragraph, which is irrelevant.

"Dr. H. C. Macatee was recognized. He reiterated the plea of the chairman of the Executive Committee that if any members had ideas on this subject, or information about it they should submit it to the committee for investigation. He said he would like to express his personal feeling about this matter, for whatever value it may have. He was of the opinion that the medical society should not take its attitude based on the idea that there are certain scurrilous people who are trying to do a scurrilous thing to the Medical Society and doing it in an underhanded, scheming way. It was his impression, gained from conduct with certain individuals, that they are highly intelligent people who have profoundly studied this subject, who are aware of all the social currents flowing through the country with respect to the relation of the medical profession and the people. They are aware of what has been done elsewhere and the result. 'My feeling is that this is a group of responsible, honest, rather public-spirited people, who are undertaking to do something for the benefit of their associates in office. They are convinced and have secured what they call competent legal advice that they are on secure legal ground. They have by reason of their knowledge of similar projects elsewhere become convinced that wherever such organizations spring up they almost consistently receive the antagonism and the animosity of the local medical profession.' Dr. Macatee added that he was of the opinion that their desire to avoid publicity in this matter was due to their knowledge of that fact. So far as Dr. Henry Rolf Brown was concerned, Dr. Macatee stated that he has had a distinguished service in the Veterans Bureau, where he was highly esteemed. He was retired on account of age and feels that he is not old enough to be put on the shelf. Dr. Brown has been detached from the organized profession for a long time. He, Dr. Macatee, said that he for one did not blame Dr. Brown for taking the position.

"Dr. Macatee, continuing, stated that they had evidently obtained advice from the Twentieth Century Foundation and are perfectly aware that similar organizations, such as the Endicott-Johnson Medical Service, which was fought tooth and nail by the county and New York State Medical Society; also the Ross-Loos Clinic of Los Angeles, which was likewise fought tooth and nail by the California organized medicine to the point that the members of that outfit were expelled from membership and then by court order were reinstated, were in operation. It was because of all these facts that the Executive Committee has recommended that this matter be recommitted for further study as to what will be wise for the membership as well as the public.

"Dr. Macatee added that there is now available a list of corporations and organizations and persons employing physicians in a contractual relationship, prepared under the provisions of the constitution and by-laws. He urged the members to take the list and examine it carefully, and familiarize themselves with its contents."

I now go to the middle of the next page:

"Dr. Hooe said he believed he was in a position to answer Dr. Willson's question concerning hospitalization. He was of the opinion that it was the intention of this corporation for the present to have their beneficiaries hospitalized in the local hospitals and treated by their hired physicians.

"At this point Dr. Sprigg reread the recommendation of the Executive Committee, as amended:

"That the Chairman of the Executive Committee appoint three of its members to act as a subcommittee, that they were to add two members of their selection from the Society at large, for the purpose of further studying the Group Health Association, Inc., with a view of bringing back to the Executive Committee a solution concerning what the Society's attitude would be to the above Group Health Association, Inc., and to report to the Executive Committee, subject to the call of the Chairman.

"Duly seconded and adopted.

"The secretary stated that it was the duty of the Society's office to fulfil instructions from the Executive Committee to supply each member of the Society with a copy of the approved list that had been prepared, pursuant to Chapter IX, Article IV, Section 5, of the Constitution. He pointed out that they were being mailed by registered mail. He announced that any member wishing to secure his list tonight could do so by applying at the Society's office and signing for same, which would aid in the distribution."

Mr. Lewin:—Your Honor, notwithstanding our voices are melodious I think everybody is pretty tired.

THE COURT:—I had intended to go to 4:30, but maybe we had better adjourn.

FEBRUARY 20, MORNING

As the Court opened there was discussion of exhibits, after which letter to Dr. Taylor heretofore identified as U. S. Exhibit 73-A was received in evidence, also letter dated Nov. 25, 1938 from Dr. Anderson to Dr. Coole was marked U. S. Exhibit 151.

Exhibit 186, which is an original letter from John F. Hayes to Dr. William C. Woodward, dated July 31, 1937; the letter is from Washington, D. C., and reads:

U. S. EXHIBIT 186

"Dear Doctor Woodward:

"I attended the special meeting of the District Medical Society on the night of July 29th. This special meeting was called for the purpose of hearing the report of the special subcommittee appointed to secure facts and information regarding the Group Health Association, Inc.

"I am assuming that Dr. F. X. McGovern, Chairman, has sent to you a full and detailed report.

"I do not know that you expect any word from me relating to the meeting. It may be stated, however, that there were present about 150 members of the Society. Dr. Sprigg read a formal and somewhat lifeless report reviewing the facts and information which had been obtained regarding the Group Health Association, Inc. Nearly all of his facts were substantially the facts which you and Dr. Leland had supplied to the group which attended the meeting here about two weeks ago.

"In so far as I could observe, there was no new information in the Sub-Committee's report, except that it did set out the fact that the Committee had by registered letter invited or requested the President of the Group Health Association, Inc. to furnish the Sub-Committee certain information including:

"(1) A copy of its rules and by-laws;

"(2) A list of the physician personnel of the organization;

"(3) A copy of its contract with the Home Owners Loan Corporation.

"President Penniman replied by telephone, inviting the Committee to lunch with him at the Raleigh Hotel. Nothing worthy of review happened at the luncheon, except that Penniman agreed to supply a copy of the rules and by-laws when printed and a list of physicians when the staff had been filled. He refused to supply a copy of the contract on the ground that it was really the property of the Home Owners Loan Corporation, or some such reason.

"There was then about twenty minutes of general discussion by members of the Medical Society, in which Doctors Sprigg, McGovern and Macatee took active part. Doctor McGovern mounted the rostrum and made a very clear, able and comprehensive review of this entire subject and presented his subject in a manner which impressed his hearers and showed the seriousness of the entire movement.

"His remarks had the effect of creating alarm and was just what was needed, because the reading of the Sub-Committee's formal report was lifeless and stilted and made no impression—in my opinion.

"The Medical Society then approved the formal report and—as I understood—instructed the Sub-Committee to investigate further as to methods and means of meeting the situation and report at a future time.

"Nothing whatever was said on the subject of legal proceedings either in the report or in the discussion. Mr. F. A. Fanning, attorney for the Association, was not present. Your name was not mentioned, nor was the name of Dr. Leland mentioned.

"The above are my impressions of the meeting. If I have made any error in the state of facts, please understand that you should be guided by the report of Dr. McGovern, who of course is in position to supply more accurate and more complete information than I.

"Very truly yours,
John F. Hayes."

Mr. Kellcher:—Exhibit 187 is a carbon copy of an original letter from Dr. Woodward to Dr. Conklin, dated Aug. 12, 1937, and reads:

U. S. EXHIBIT 187

"Dear Doctor Conklin:

"Some time ago I wrote to Dr. McGovern, asking him to inform me concerning the results of the special meeting called by the Medical Society of the District of Columbia to consider the activities of the Group Health Association. In the course of a recent visit to Washington, Dr. McGovern told me that he was no longer on the Committee having charge of the matter and that he had referred my letter to you. Will you not let me know what was done by the Society and what the present situation is?

"Yours truly,
Director."

Exhibit 188 is the reply of Dr. Conklin to Dr. Woodward dated Aug. 14, 1937:

U. S. EXHIBIT 188

"Dear Doctor Woodward:

"In reference to your inquiry of August 12, concerning the present status of the Medical Society's deliberations, I would state a Committee at present constituted as follows:

Dr. A. C. Macatee, Chairman
Dr. R. Arthur Hooe
Dr. Thomas A. Groover
Dr. C. B. Conklin

has been organized for the purpose of giving further study of the Group Health Association with view to making recommendation to the Executive Committee as to the Society's attitude in the premises. At the special meeting of the Medical Society to which you make reference and which was attended by some ninety members with Mr. Hayes present, a detailed report was made of the various contracts with the Home Owners' Loan Corporation Group. Various opinions were expressed by individual members ranging from the taking of most drastic measures in the way of boycott, etc., to various conciliatory propositions. Finally, an Executive Committee recommendation was accepted to the effect that the Chairman of the Committee appoint a subcommittee of three members which in turn would select two members from the Society at large. The function of the Committee would be to seek further data and bring a recommendation to the Executive Committee as to plans for a course of action. The aforesaid Committee has had one meeting. An expressed policy is to receive reports from any individual members and to obtain proposed plans from members as to course of procedure.

"It will give me pleasure from time to time to report any developments. In the meantime, the Committee would be very much pleased indeed if the American Medical Association Headquarters would wish to be represented at any of its meetings or would have any proposals to combat the movement, which has implications affecting far greater territory than the District of Columbia.

"Very truly yours,
C. B. Conklin, M.D.
Secretary."

Mr. Kelleher:—Exhibit 181 is a carbon copy of an original letter signed by Dr. Woodward, dated Aug. 21, 1937, and addressed to Mr. John F. Hayes, Washington, D. C., reading as follows:

U. S. EXHIBIT 181

"Dear Mr. Hayes:

"Will you not some time within the coming week learn what you can concerning the activities of the Group Health Association, with particular reference to the establishment of its clinic and the publication of the names of the members of its medical staff. You may recall that the association proposed, according to the newspapers, to open September 1.

"Confidentially, I am preparing an article on the situation and would like to have the latest details.

"Say nothing to Conklin or anyone else about my plans for publication.

"Yours truly,
Director."

Mr. Kelleher:—Exhibit 182 is the reply of John F. Hayes to Dr. Woodward, dated Aug. 24, 1937:

U. S. EXHIBIT 182

"Dear Dr. Woodward:

"I regret that efforts made yesterday and today to secure information regarding Group Health Association Inc., through the District Medical Society, have not been very successful.

"Dr. Conklin is out of the city. A New Committee or Sub-committee was appointed consisting of Dr. Henry C. Macatee, Dr. R. Arthur Hooe, Dr. Thomas A. Groover and Dr. F. X. McGovern. Nearly all of these doctors are out of the city. I was able to speak to Dr. McGovern on the telephone, but he had no up-to-date information other than the fact that the Medical Society will hold another meeting on this particular subject on September 10th.

"On some independent investigation of my own, I learned that the clinic of this Association is to be located at the Evans Electrical Building. I called there, and observed that this is a small but attractive two store building owned and occupied by the O. H. Evans and Bro. Inc., dealers in electric fixtures and lamps, etc. This firm occupies the first floor and it has on hand and present in all directions a large supply of floor lamps, and fine merchandise of that character.

"I inquired for the offices of the Group Health Association and was informed that they have leased the second floor of this building. Thereupon I went to the second floor; there is no elevator. The second floor was entirely unoccupied. This entire floor is one enormous room, approximately 25 feet wide and possibly 70 or 80 feet long. At the present time it has no partitions, few if any electric lights; the walls and ceiling and floors require reconditioning. In my judgment it will require at least four or five weeks to put this second floor space in anything like working condition.

"This O. R. Evans and Bro. building is located at 1326 Eye St. N.W. If the affairs of the Group Health Association are to be conducted from these headquarters it is my opinion that they are starting in most modest and unassuming style.

"Thereupon, I returned to my office and called on the telephone the office of Mr. William F. Penniman, of the Home Owners' Loan Corporation. Incidentally, I observe, from the Congressional Directory, that he is Assistant General Manager for District No. 6, comprising the States of Arizona, California, Idaho, some other states and Hawaii and Alaska.

"I asked the young lady if she could supply me with any printed information regarding the Group Health Association. She referred me to the Home Owners Loan Corporation Publicity Man, Mr. Acton. Thereupon I went to Mr. Acton's office and was informed by him that no news matter had as yet been prepared by him; that such matter as had appeared in the local papers was premature and without official sanction.

"He stated that their clinic on Eye Street had not yet been started and that it would be several weeks before there would be any news to give out. He suggested that I call upon Mr. Penniman for further information. In view of the experience of the Committee of the District Medical Society at the luncheon given by Mr. Penniman to that group I considered it the part of wisdom to confer with Mr. Penniman at some remote time in the future.

"Dr. Conklin may return to Washington Saturday, and if so I will see him then and report further to you.

"Very truly yours,
John F. Hayes."

Mr. Lewin:—I will read from the minutes of the special meeting of the Executive Committee of the District Medical Society of the District of Columbia, held Wednesday evening, Sept. 8, 1937, 8 p. m.:—

U. S. EXHIBIT 37

"Dr. William Mercer Sprigg, Chairman, presiding.

"Present: Drs. E. G. Breeding, Charles B. Campbell, D. N. Chipman, William T. Gill Jr., A. C. Gray, R. Arthur Hooe, Henry C. Macatee, F. X. McGovern, Thomas E. Neill, John A. Reed, E. Hiram Reede, Sterling Ruffin, Henry R. Schreiber, Earl R. Templeton, R. Lomax Wells, C. B. Conklin; Thomas A. Groover, by invitation.

"The Chairman announced that the special meeting was called to hear a report of a Subcommittee of the Executive Committee, which had been appointed pursuant to action of the Society taken on the evening of July 29, 1937.

"The Secretary was called upon to make a report in the absence of the Chairman of the Subcommittee, Dr. H. C. Macatee. It was stated that during Dr. Macatee's absence from the city during the month of August, Dr. R. Arthur Hooe and committee members thought that owing to a clamor for action that had been set up by certain Society members, it was incumbent upon the committee to hold a meeting. At a meeting, which was held in the office of Dr. Thomas A. Groover, it was adopted that Dr. Thomas A. Groover and Dr. F. X. McGovern be duly appointed from the Society at large as members of the Subcommittee. It was conceived that the function of the committee was to consider the Group Health Association cooperative medical service movement, with view, if possible, to stating the Society's attitude and also, if possible, to offer plans for combat. The second meeting was held in Dr. Groover's office and a final meeting on this evening in the Society's office. The following is given as a statement of opinion of the committee at this time:

1. That the Group Health Association is unethical and that the participation in it by any member of the Medical Society of the District of Columbia would render him or her subject to disciplinary action by the Society.

2. Your committee at this time has no definite recommendation to make with respect to combating the activities of the Group Health Association other than is embodied by implication in the preceding paragraph.

3. It is the opinion of your committee that the Medical Society of the District of Columbia should maintain close contact through the chairman of this committee with the American Medical Association in an effort to formulate a suitable and an effective policy with respect to combating the activity of the Group Health Association.

"It was explained that Dr. Macatee had been duly notified of the committee's activities during his absence and also that it was the desire of the committee to hold a meeting just previous to the meeting of the Executive Committee on this evening. Dr. Macatee had stated over the telephone that his afternoon was very well taken up and it would be impossible for him to be present.

"Upon motion, duly seconded, the Executive Committee unanimously accepted the report of the Subcommittee.

"At this point Dr. R. Arthur Hooe called on Dr. F. X. McGovern to state his views.

"Dr. McGovern said that he looked upon this Group Health Association movement as an organization coming in and interfering with his business. He added that he expected to be in practice for some 20 years and he did not propose, if it could be avoided at all, to have an organization such as was proposed to interfere with his work and income. 'Just what are you fellows going to do about it?' He cited the instance of the musicians who had succeeded in preventing the Marine Band from cutting in on their business in playing before assemblies without cost to the sponsors. Through the organized musicians' activities not only was this Governmental agency, the Marine Band, stopped from so proceeding but an adequate salary had been obtained for each of the Marine Band musicians. The lawyers as a group had prevented inroads on their business. 'It just doesn't seem that we are active in preventing the National Government from entering the practice of medicine and interfering with our business. It should be demanded from the American Medical Association that they send a man down here now and see just what could be done.'

"Dr. T. A. Groover stated that he heard of no plan that was practical in opposing this group practice. 'If we would hire a lawyer, I doubt seriously whether it would do any good, as apparently there is nothing illegal in what is being contemplated. There is one other suggestion, that the Medical Society set up a health insurance program and should be thought that this would be a tremendous undertaking and should not be done without American Medical Association assistance. It should be recognized that what happened in England, along about 1910-1912, was that there were active certain prepaid insurance plans, the finances and management of which had gotten so chaotic that they

various groups literally begged the Government to take them over and run them. The members of the Society should know that most every large country has now some form of health insurance. The English profession supports their plan. Health insurance seems to work better in the Scandinavian countries. These countries are small and thrifty and have not been in a war for 100 years or more but have profited tremendously from the wars that have been carried on about them."

Mr. Lewin:—I will omit some there. (Continuing:)

"Dr. Sterling Ruffin stated that it was apparent that all were opposed to the activities of the group organization. He thought that the report, as submitted, should go back to the committee for revision; that the American Medical Association should be contacted, gaining assurance that they approved what would be the result of the subcommittee's deliberations. Dr. Ruffin made a motion to this effect."

Mr. Lewin:—I will omit the rest. That portion of it then deals with a contribution to the society and some other matters, and the minutes are signed by Dr. Conklin.

I now shall read Exhibit 190, which is a carbon copy of a letter from Dr. Woodward to the defendant Dr. Conklin, as Secretary of the District Medical Society, dated 1937, written in Chicago:

U. S. EXHIBIT 190

"Dear Doctor Conklin:

"Our Executive Committee and Board of Trustees meet in Chicago next week, September 15, 16, and 17. They are much interested in developments with respect to Group Health Association, particularly with respect to any activities and plans of the Medical Society of the District of Columbia in relation to it. If you drop me a line giving the latest information available, in time for me to have your letter mimeographed for the use of the Executive Committee and the Board, I shall appreciate it.

"Yours Truly,
Director."

Now I will read Exhibit 84, which is an original letter back from Dr. Conklin to Dr. Woodward, dated Sept. 13, 1937:

U. S. EXHIBIT 84

"Dear Doctor Woodward:

"In reference to your letter of inquiry under date of September 8, 1937, I would state that there have been no further developments of importance relative to the Group Health Association.

"There is a subcommittee of the Executive Committee, about which you may have information, constituted as follows:

Henry C. Macatee, Chairman
R. Arthur Hoove
Thomas A. Groover
Francis X. McGovern
Coursen B. Conklin

This committee reported at a special meeting of the Executive Committee that it had no substitute plan to offer at this time; and further, that in view of apparent violation of the Code of Ethics of the American Medical Association in that free choice of physician would not be allowed, and that contract practice was involved, no approval could be given to the movement. The general statement of the subcommittee, as imparted to the Executive Committee, was as follows:

"It is the opinion of your committee:

"1. That the Group Health Association is unethical and that the participation in it by any member of the Medical Society of the District of Columbia would render him or her subject to disciplinary action by the Society.

"2. Your committee at this time has no definite recommendation to make with respect to combating the activities of the Group Health Association other than is embodied by implication in the preceding paragraph.

"3. It is the opinion of your committee that the Medical Society of the District of Columbia should maintain close contact through the chairman of this committee with the American Medical Association in an effort to formulate a suitable and an effective policy with respect to combating the activity of the Group Health Association."

"The Subcommittee was instructed by the Executive Committee to prepare, for distribution to the members and the press, a detailed statement of attitude. This is now in formulation.

"Our recent information is that there has been no progress in the conversion of a second-floor building on Eye Street, between Thirteenth and Fourteenth streets, into clinic headquarters. The large barren room itself appears devoid of any accessories such as proper lighting, plumbing, etc., for the successful carrying on of their project.

"Very truly yours,
C. B. Conklin, M.D.,
Secretary."

Mr. Kelleher:

"Minutes of the regular meeting of the Executive Committee of the Medical Society of the District of Columbia, held Monday, September 27, 1937, 8 p. m.

"Dr. William Mereer Spriggs, Chairman, presiding.

"Present: Drs. A. B. Bennet, Daniel L. Borden, Charles B. Campbell, C. N. Chipman, Augustus C. Gray, Raymond T. Holden Jr., R. Arthur Hoove, H. C. Macatee, F. X. McGovern, Thomas E. Neill, John A. Reed, E. Miram Reece, Sterling Ruffin, Earl R. Templeton, R. Lomax Wells, and Coursen B. Conklin.

"The Chairman, at this point, called on Dr. H. C. Macatee, Chairman of a Subcommittee to consider the Group Health Association, Inc., for a report. The report was read, Dr. Macatee stating that there had been two meetings of the committee and that the committee recommended the following for presentation to the membership:

"At a special meeting of the Medical Society of the District of Columbia, held July 29, 1937, the membership was advised of all the facts that the Executive Committee had been able to gather respecting the purposes, proposed methods, and progress of a corporation, composed of employees of the Home Owners' Loan Corporation, now in process of organization, the object of which is to provide complete medical, surgical and hospital care for its members and their dependents, upon a prepayment plan of financial support through membership dues. The professional services offered by the corporation are to be supplied by a full-time, salaried staff of medical and other technical employees. The name of the organization is Group Health Association, Incorporated, of the Home Owners' Loan Corporation.

"The Executive Committee recommended at the special meeting that the Society authorize a further study of the subject by the Committee in order to enable it to report suitable recommendations to the Society looking to the formal adoption of an official attitude toward this proposed new type of medical practice, unfamiliar to this community. Such an expression of the Society's attitude is necessary for the guidance of our membership, both with respect to possible employment by the corporation and with respect to professional relationships to its medical and technical employees when and if it shall have begun to function.

"The Executive Committee finds: First, that employment by or professional relations with the Group Health Association, Incorporated, on the part of our members would be conditional upon approval of the organization by the Society as required by Chapter IX, Article III, Section 2, of the Constitution; that no application has been made by any member or by the organization itself for such approval; and that consequently there has been no submission of the data required for approval to the Compensation, Contract and Industrial Medicine Committee of the Society.

"The Committee finds: Second, that the conditions of rendering the medical and surgical service offered by Group Health Association, Incorporated, as set forth in such written promulgations of the organization the Committee has been able to see and as indicated verbally by officers of the corporation, appear to be inconsistent with the criteria for an acceptable form of contract practice as set forth in Chapter III, Article VI, Section 3, of the Principles of Medical Ethics of the American Medical Association, by which we are obliged to be guided. In particular it would appear that at least two of the criteria would necessarily be violated, viz.: '1. Where there is solicitation of patients, directly or indirectly'; and '5. When free choice of a physician is prevented.' In the first instance, it is obvious that the solicitation of employees of the H. O. L. C. to take membership in Group Health Association, Incorporated, is an effort to entice many away from medical relationships already formed to the medical personnel of the corporation. This effort would raise the question whether a further criterion of an acceptable contract is violated, viz.: '4. When there is interference with reasonable competition in a community.'

"However, the criteria above quoted must be applied in the light of experience, and we are required by the same Principles of Ethics to exercise prudence in forming opinions: 'Judgment should not be obscured by immediate, temporary or local results.' In any form or instance of contract practice 'The decision as to its ethical or unethical nature must be based on the ultimate effect for good or ill on the people as a whole.'

"The Executive Committee, therefore, recommends the adoption of the following:

"Resolved, That a final expression of the attitude of the Medical Society toward the acceptability of any cooperative medical service organization as an approved agency for the employment of members is manifestly impossible without the submission of all related data as a basis of approval, and manifestly undesirable when information is lacking as to whether any such group will ever become operative; and

"Resolved, That the membership be reminded of the requirements of Chapter IX, Article III, Section 2 of the Constitution for their guidance with respect to Group Health Association, Incorporated, of the H. O. L. C.; and

"Resolved, That the Medical Society recognizes a growing desire in Washington for some feasible plan of cooperative group medical service on a prepayment basis; that it recognizes the value of such an arrangement for many people of limited incomes; and that, having already provided a means in the Health Security Administration, for the people without ready money to secure medical service on a postpayment plan, it is willing to collaborate with appropriate, responsible groups to devise methods for group prepaid medical service mutually acceptable to the two essential parties to such an agreement, viz.: the group needing and proposing to pay for the service and the group capable of furnishing it; and

"Resolved, That, if hereafter it shall appear necessary or desirable, the Board of Medical Supervisors of the District of Columbia be requested to determine, by judicial decision if necessary, whether the operating of Group Health Association, Incorporated, or any similar organization, is or will be in conformity with the Healing Arts Practice Act for the District of Columbia.

"Dr. Macatee, upon concluding reading, stated that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION would publish in its issue of Oct. 2, 1937, a detailed analysis of the Group Health Association, Inc., pointing out weak points from a legal viewpoint. It began with the statement that Title 5, Chapter 5 of the District Code was taking advantage of, which had to do with the mutual welfare of individuals in organizations. It was clear that the Government was definitely embarking in the insurance business and that the check-off from the Government payroll would have all of the evil points that were included in checkoff in the factories for union dues. The American Medical Association's statement would cover four or five pages in THE JOURNAL. It was emphasized that this material was not for release until September 29. Dr. Macatee stated that it was his view that despite this article appearing in THE A. M. A. JOURNAL, there should be no hesitancy in adopting the report of the Subcommittee.

"Dr. Sterling Ruffin and others agreed with this view.

"Dr. F. X. McGovern was recognized. He stated that he thought the report was very good but rather weak. He thought conditional verbs should be eliminated and indicative mode used. For instance, it was stated certain things appeared to be. He thought a direct statement should be made here that there was definite violation of ethics and of the principles of good medical practice. It was his opinion that the Secretary should get sufficient reprints to supply the entire membership and that the prepare statement as presented by Dr. Macatee be withheld.

"The Secretary stated that he was present at the time of the preparation of the report submitted by Dr. Macatee. He was of the opinion, after hearing for the first time the American Medical Association's statement that certainly the third resolution, having to do with the idea that some prepayment plan taking care of individuals in Washington should be adopted and that there was a definite sentiment abroad for same, should be stricken out as it appeared to him that it would conflict with the American Medical Association's arrangement of the disapproval of the Government's prepayment plan. A demarcation should be drawn between the Government entering the practice of medicine with an insurance scheme and private firms in other states which were now apparently meeting with success in propagating health insurance.

"Although this view was supported by a few members present it was unanimously adopted that Dr. Macatee's report, as presented, be accepted with recommendation of adoption by the Society.

"Dr. Macatee made a motion that he thought might take care of some of the objections to the report, that the following resolution be added:

"Resolved, That the attention of the membership be directed to a critical analysis of Group Health Association, Incorporated, prepared by the Bureau of Legal Medicine and Legislation of the American Medical Association, to appear in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for Oct. 2, 1937; and that the membership be admonished to read the entire article for their information and guidance.

"This resolution was unanimously adopted."

Mr. Leahy:—Just read what Dr. Hooe stated.

"Dr. R. Arthur Hooe was especially strong in advocating the adoption of Dr. Macatee's presentation. He thought that the Medical Society might be accused of selfish motives if it eliminated any of it."

Mr. Kelleher:—I have nothing further to read from those minutes except a copy of a letter from Dr. Yater to Dr. Macatee dated Aug. 23, 1937, which is attached to the minutes.

"Georgetown University Hospital
"Aug. 23, 1937.

"Dr. Henry C. Macatee
26 Columbia Avenue
Rehoboth Beach, Del.

"Dear Dr. Macatee:

"I suppose you have heard that the Hospital Superintendents' Association has requested the Central Admitting Bureau to sever relations with the Medical-Dental Service Bureau and to act as a collecting agency itself on the accounts of patients aided by the Community Chest. This, of course, would be the death knell of the Medical-Dental Service Bureau.

"Personally, I can see no great advantage to be gained for the hospitals by making this change. The amount of saving possible would be relatively little since the Central Admitting Bureau would have to increase its staff, its space and equipment. So far as I can learn, no one has demonstrated that there would be any substantial saving.

"Furthermore, it was decided in the very beginning that the function of the Central Admitting Bureau was that of a clearing house and a disbursing agency and that it would have nothing to do with collections. Also it can be shown in black and white that the Medical-Dental Service Bureau has done an excellent job of collecting bills for hospitals considering the class of patients involved.

"If the business of the hospitals is withdrawn from the Medical-Dental Service Bureau, this change will cut the income of the Medical-Dental Service Bureau to approximately \$600 a month, which will be insufficient to do a good job with. Since it seems to have been forgotten, I would like to point out that the Medical-Dental Service Bureau has always paid more than its share toward the rent, phone service and upkeep of the Medical Security Building. This fact should certainly be pointed out to the hospital superintendents.

"Since it appears, therefore, that the proposed change would ruin the Medical-Dental Service Bureau, which was established by the organized medical and dental professions of the District of Columbia for the purpose of aiding the underprivileged sick, and since the change could not possibly bring about substantial saving to the hospitals, I believe a very strong appeal should be made to the hospital superintendents, preferably individually, to reconsider this request in the light of the above facts. The hospitals must take a more liberal attitude toward the Washington plan. We cannot afford to have it destroyed. The hospitals must be made diplomatically to see that they exist only for the purpose of making it possible for physicians to better care for sick people and that these physicians have developed and are administering the Washington plan. The hospitals cannot afford, in my opinion, to disregard the wishes of the medical profession, especially since the formation of the new Doctors' Hospital indicates dissatisfaction with the hospitals as they are now run.

"Although I am no longer officially connected with the Central Admitting Bureau nor the Medical-Dental Service Bureau, I feel so strongly about this matter that I am willing to do most anything to prevent destruction of a structure which we have all strived so hard to build up. I hope you will see it the same way that I do and will go to bat against the proposed change. Please let me know of what assistance I may be in the matter.

"With warm personal regards, I am,

"Very sincerely yours,
Wallace M. Yater, M.D."

Mr. Lewin:—I should like to read from Exhibit 189:

U. S. EXHIBIT 189

"American Medical Association,
"Bureau of Legal Medicine and Legislation,
"William C. Woodward, M.D., LL.M., Director.
Sept. 1, 1937

"To the Board of Trustees,
American Medical Association:

"At the meeting of the Executive Committee of the Board of Trustees of the American Medical Association, June 29, 1937, a resolution was adopted authorizing the Editor and the Secretary and General Manager to inform the medical profession of the country as to the efforts of the Home Owners' Loan Corporation to enter upon the practice of medicine and as to the present status of the proposal to organize cooperatives by the Government. In response to your request for information concerning the matter, I submit the following report.

"Respectfully,

William C. Woodward, M.D., LL.M.,
Director, Bureau of Legal
Medicine and Legislation.

"Memorandum for Dr. West and Dr. Fishbein:

"To avoid possible conflict on my part with the attached Canons of Professional Ethics of the American Bar Association, I am submitting the accompanying material to you in the form of a report. If you decide to publish it, I hope that my letter will be published along with it so as to make my status clear. If the letter should be addressed to you or to either of you, change can be made accordingly.

"The minutes of the meeting of the Executive Committee, June 29, 1937, show the adoption of the following resolution:

"Dr. Bloss moved that the Editor and the Secretary and General Manager be authorized to proceed to inform the profession of the country as to the efforts of the H. O. L. C. to enter into the practice of medicine and as to the present status of the proposal to organize cooperatives by the government. Dr. Hayden seconded the motion and it was carried."

"W. C. W."

And attached to that is a document entitled "Extract from Canons of Professional Ethics, American Bar Association," and an article entitled "Group Health Association, Incorporated. Unlicensed Health Insurance and Corporate Practice of Medicine under Federal Auspices."

I shall now read from Exhibit 484, which is a portion of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for Oct. 2, 1937, and which contains the article referred to in that report. Now, here again, Mr. Leahy, we would be satisfied to omit some of this article; I don't know whether you like it all or not.

Mr. Leahy:—What is the article?

Mr. Lewin:—It is an article that appeared in THE JOURNAL.

Mr. Leahy:—That is Exhibit 293.

Mr. Lewin:—It is very long. We have no objection to having it all in, but in the interest of saving time we can read only a portion of it.

Mr. Leahy:—Well, I think it all ought to be read, if your Honor please. It is an article by Dr. Woodward.

Mr. Lewin:—Yes. All right.

"Organization Section of the Journal of the American Medical Association.

"Devoted to the Organizational, Business, Economic and Social Aspects of Medical Practice.

"Saturday, Oct. 2, 1937."

Then follows the "Contents" of that section.

"Group Health Association, Incorporated.

"Health Insurance and Corporate Practice of Medicine Under Federal Auspices.

"Prepared by the Bureau of Legal Medicine and Legislation

"Unlicensed and unregulated health insurance and corporate practice of medicine in the District of Columbia, and wherever else in the world a civil officer or employee of the United States government may be found, are proposed in a certificate purporting to be a certificate of incorporation, filed on behalf of Group Health Association, Inc., in the office of the Recorder of Deeds, of the District of Columbia, Feb. 24, 1937. The certificate makes eligible for membership every employee of every branch of the United States government other than officers and enlisted men of the army and navy. It attempts to authorize the association—

"To provide, without profit to the corporation, for the service of physicians and other medical attention and any and all kinds of medical, surgical and hospital treatment to the members hereof and their dependents, and the construction and operation of a clinic and medical office building, and the construction and operation of a hospital in the manner permitted by law, for the members hereof and their dependents, and the operation of a drug store or pharmacy, and the providing of nurses and of drugs and remedies for the members hereof and their dependents, and the furnishing of all forms of hospital service and attention to the members hereof and their dependents, and in general the giving to the membership of this association and their dependents of all forms of care, treatment or attention that may be required by the sick or in the prevention of disease."

That was taken from the charter.

"The Federal Home Loan Bank Board, a fiscal agency of the United States government, is sponsoring Group Health Association morally and

through a contract of such a character that neither the Federal Home Loan Bank Board nor Group Health Association is willing to make it public.

"ORIGIN OF GROUP HEALTH ASSOCIATION"

"The development of a health insurance organization among employees of the federal government in the District of Columbia, to pay benefits to its members in the form of medical and hospital service and not in cash, was foreshadowed by an anonymous nineteen page prospectus, marked 'Confidential: For Private Circulation Only,' that came to light in the early part of the current year. It offered 'A Plan for a Cooperative Medical Service on a Periodic Payment Basis for Federal Employees and Their Families in Washington.' The prospectus said:

"The aim of this plan is to make available to Federal employees in Washington, and to their families, adequate medical care, both preventive and curative; to provide this care at moderate cost; and to place that cost on a regular, budgetable basis within the means of the group to be served. If Federal employees are typical of the general population with equivalent incomes, many do not now obtain adequate medical care, especially preventive service and care in chronic conditions, while many others incur disastrous debts each year because of sickness costs. The provision of better care should promote health and well being and reduce time lost from work because of illness. The plan should be of benefit not only to the employees and their families, but also to the Government they serve.

"The prospectus stated incidentally that 'federal employees lose approximately seven days a year from work because of illness,' but it did not purport to justify the proposed organization of a health insurance association on the basis of and study of the nature and extent of illness among federal employees and their dependents, nor on the cost of such illness to such employees or to the government. Later, however, after Group Health Association had been organized, its president, by way of justification or excuse, asserted that the association was the result of studies of health conditions among the employees of the Federal Home Loan Bank Board and its affiliated agencies. No report of any such studies, however, their methods and results, has ever been made public. Admittedly, too, even the secret study referred to did not include a parallel study of sickness among employees of the federal government other than those in the Home Owners' Loan Corporation, one of the affiliated agencies of the Federal Home Loan Bank Board.

"INCORPORATION OF GROUP HEALTH ASSOCIATION"

"The Code of the District of Columbia, 1929, title 5, chapter 7, section 179, provides—

"Every corporation, joint-stock company, or association not exempt herein, transacting business in the District of Columbia, which collects premiums, dues, or assessments from its members or from holders of its certificates or policies, and which provides for the payment of indemnity on account of sickness or accident, or a benefit in case of death, shall be known as 'health, accident, and life insurance companies or association.'

"Group Health Association comes clearly within the category described, for the fact that it pays its members indemnity, not in cash, but in the form of medical and hospital service, is not material. The association, however, was probably deterred from undertaking to operate under this section because it provides that—

"No such company or association shall transact business within the District of Columbia unless it shall have in assets or in capital stock fully paid up in cash, or in both together, not less than twenty-five thousand dollars as a capital or guaranty fund. . . .

"Presumably, the association, at the time of its organization, did not have in hand the required \$25,000.

"True, this section of the District Code, regulating the business of insurance in the District of Columbia, provides—

"That nothing contained herein shall apply to any relief association, not conducted for profit, composed solely of officers and enlisted men of the United States Army or Navy, or solely of employees of any other branch of the United States Government service, or solely of employees of any individual, company, firm, or corporation.

"But Group Health Association could not take advantage of this, for it is not a 'relief association' but an insurance association, and, moreover, under what purport to be the by-laws of the association, its membership is not to be made up solely of employees of the federal government. Members whose connections with the federal government have terminated are to have the right of continuous membership as long as they pay their dues and assessments. The association is to give no 'relief' within the legal meaning of that term; it is to do nothing more than discharge its legal obligations to its members under its membership agreement.

"Only by incorporation, however, could the promoters of Group Health Association avoid personal liability for the debts and torts of the association. Unable to qualify as a corporation carrying on the insurance business, and perhaps unwilling to submit to the supervision and control to which the insurance business is subjected, the organizers of Group Health Association, while still proposing to carry on the insurance business as defined in the District of Columbia Code, sought refuge under a provision of that code that has no relation to insurance. Group Health Association was therefore 'incorporated' under the provisions of the District of Columbia Code, 1929, title 5, chapter 3, authorizing the incorporation of benevolent, charitable, educational, literary, musical, scientific, religious and missionary organizations, including societies formed for mutual improvement or for the promotion of the arts. Nothing in the certificate of incorporation of Group Health Association suggests that it has any educational, literary, musical, scientific, religious or missionary aspirations or is intended for the promotion of the arts. It is difficult to discover any activity named in the certificate of incorporation of Group Health Association that by any possibility brings the organization within any other of the categories named. The association is not a benevolent or charitable organization; the poorest charwoman or laborer is to pay for the indemnity offered by the association against loss through illness

exactly the same dues or premiums that are to be paid by even the most wealthy officials and employees of the Federal Home Loan Bank Board and other government agencies, and nobody is to get anything whatever free under any circumstances. The association cannot successfully claim the right to incorporate as a corporation for 'mutual improvement' within the meaning of the code, for any construction of the provisions of the code that would permit such incorporation would leave the code wide open for all manner of abuse; such provisions then could be used for the organization of morally and financially irresponsible finance, banking, insurance, business and professional corporations of all kinds, each organized for the 'mutual improvement' of its members financially, through the exploitation of some other class or classes in the community, just as Group Health Association is. Such abuses would not be prevented by the fact that banking, insurance and many other forms of business activity and the professions are strictly regulated by law; for the business of insurance and the practice of medicine in which Group Health Association proposes to engage are likewise strictly regulated by law, and if through incorporation as an organization for 'mutual improvement' the association could defeat the laws regulating insurance and the practice of medicine, other persons, differently incorporated, could defeat the laws relating to banking, insurance and other businesses and the laws relating to the professions other than medicine.

"Aside from the obstacles in the way of the incorporation of Group Health Association pointed out, there is a further obstacle. An organization cannot be lawfully incorporated to effect unlawful ends, and the certificate of incorporation filed by Group Health Association indicates clearly that one of its purposes is insurance, which cannot be lawfully carried on under the provisions of the code under which the association professes to be incorporated, and its other purpose, the practice of medicine, is unlawful if carried on without a license such as the association does not possess and cannot obtain either in the District of Columbia or in any state in which the association proposes to practice.

"That Group Health Association does propose to engage in the insurance business is apparent from an examination of the District code, which provides that every corporation, joint stock company or association not specifically exempted, which collects dues or assessments from its members and which provides for the payment of indemnity on account of sickness or accident, shall be known as a health or accident insurance company or association and shall qualify accordingly. Under its certificate of incorporation, Group Health Association is to collect dues or assessments from its members. In event of their illness or injury, or the illness or injury of any of their dependents, it is to pay indemnity in the form of medical, hospital and other services. The fact that indemnity is paid in the form of services and not in the form of cash does not alter the situation. Without considering any of the legal principles by which this dictum may be supported, it must be clear even to any one that the payment of indemnity in services releases the insured member of the association from what otherwise would be his own obligation to pay in cash for such services and thus releases his own cash for whatever use he desires to make of it. The payment of indemnity in services is therefore the equivalent of cash payment.

"That Group Health Association proposes to practice medicine in the District of Columbia, Maryland, Virginia and possibly other states is shown by its certificate of incorporation and by its by-laws. Its certificate of incorporation is a feebly disguised attempt on the part of the organizers to obtain authority for the association, without liability on the part of its members, to treat its members and their dependents, through hired servants and agents of the association, for any and all manner of disease and injury, and its so-called by-laws elaborate on that plan. This certainly constitutes the practice of medicine by the association, notwithstanding the fact that the association is not and cannot be licensed so to practice. The United States District Attorney for the District of Columbia and the Corporation Counsel for the District have both held that a corporation cannot lawfully engage in the practice of medicine in the practice of a profession that requires licensure or registration as a condition precedent to lawful practice, even though the corporation undertakes to practice through licensed or registered agents. If and when Group Health Association begins to practice medicine as proposed in its certificate of incorporation and its by-laws, the United States District Attorney and the corporation counsel for the District, in pursuance of the duties of their respective offices that they have sworn to perform, will be bound to take action to enforce the law.

"From what has been said it is to be assumed that the attempt of the organizers of Group Health Association to incorporate is ineffective and that the members of the organization constitute only a voluntary association. If so, the members of the association will have a certain personal liability for its debts and torts, notwithstanding the disclaimer in the certificate of incorporation.

"FINANCIAL RELATIONS"

"The certificate filed by Group Health Association in the office of the Recorder of Deeds in the District of Columbia provides that the association is to have no capital stock and is to render to its members and their dependents the services described therein, 'without profit to the corporation' and without personal liability on the part of its members. The certificate is silent as to the sources from which the association obtained the money necessary for its organization and establishment. It is silent also with respect to the sources from which it is to derive its operating income, except that it refers to members who have paid their 'dues' and to members who have paid their 'dues and assessments, if any.' In the pamphlet containing what purports to be the by-laws of the association, but which contains nothing to show that the members of the association ever adopted them, provision is made for the payment of 'dues' and reference is made to the payment of 'assessments,' but the formula for levying assessments and the limitations on them, if any, do not appear. These supposed by-laws provide, however, that they may be amended by the board of trustees at any time,

and, if this attempt to vest in the board of trustees supreme control over the affairs of the association is effective, the board, at any 'regular meeting or at any special meeting when the proposed amendment has been set out in the notice of said meeting' can amend the by-laws so as specifically to authorize assessments and can even at that same meeting levy on the members of the association any assessment that it deems proper.

"FEDERAL HOME LOAN BANK BOARD

"The sources of the money necessary to promote the organization of Group Health Association in the first place, to organize it, to provide it with necessary quarters and equipment and to guarantee operating costs long enough to determine whether the association can or cannot become self supporting are secrets carefully guarded by the Federal Home Loan Bank Board and Group Health Association. Whether this is because there are private interests behind the association that are unwilling to have their connection with it disclosed, or because disclosure might uncover a precedent that would lead to embarrassing demands on the Federal Home Loan Bank Board by persons desirous of forming similar organizations in the field of medicine, dentistry, insurance or social work, or simply because disclosure would subject the board and the association to annoying criticism, is not known. One prominent officer of the Federal Home Loan Bank Board, of the Home Owners' Loan Corporation and of the Federal Savings and Loan Insurance Corporation, who is a member of Group Health Association and has given it his particular blessing, is listed also as one of the trustees of the Twentieth Century Fund, Inc., of which Edward A. Filene of Boston is listed as president and trustee; but perhaps this has no significance.

"Under what law does the Federal Home Loan Bank Board or any of its affiliated agencies finance by government loans private organizations such as Group Health Association? Even if there were such authority, good judgment would hardly justify the making of such loans in the entire absence of any likelihood of repayment. There would seem to be no likelihood of the repayment by Group Health Association of any loan made to it under its present setup. The dues of members of the association are so low that it is hardly likely that it will ever be able to pay even operating expenses—provided, of course, it undertakes to furnish its members and their dependents with really first class medical and hospital service. As far as any available record shows, provision has not been made by the association for the amortization of the initial costs of plant and equipment.

"Possibly the contract between the Federal Home Loan Bank Board and Group Health Association, made apparently without advertisement or competitive bidding and carefully concealed from the public, may provide for payments to the association by the board so greatly in excess of the cost of the service that the association is to render as to enable the association to repay such advances as have been made by private interests, to pay for necessary quarters and equipment, and to protect the association against loss from medical and hospital services rendered officers and employees of the board and its affiliated agencies, and the dependents of such officers and employees. In any event, it has been admitted that the Home Owners' Loan Corporation has already appropriated an initial sum to enable Group Health Association to render services of some kind, to somebody, somewhere, and according to newspaper reports the Federal Home Loan Bank Board has guaranteed an advance up to \$100,000 to get the association under way.

"DUES AND ASSESSMENTS

"Under the by-laws of the association, 'family membership' is available for 'married or single members with dependents,' at a cost of \$39.60 per annum payable in equal monthly instalments. No limit is placed on the number of dependents on whom a 'family member' can confer all benefits of the association under this class of membership. 'Individual membership' available for 'married or single members having no declared dependents' is now priced at \$26.40 a year, payable monthly. The amount of the dues can be changed at any time by the board of trustees. A 'dependent' is defined as a person 'totally dependent upon the member of the corporation for a livelihood at the time of such person's disability and before need of medical service.'"

"CHECK-OFF ON GOVERNMENT PAYROLL

"The form of application for membership provided by Group Health Association offers the member the option of paying his dues personally or of assigning to the association so much of his government salary as may be necessary for that purpose and requesting his 'employer,' the government of the United States, to deduct semimonthly the amount assigned and remit it to Group Health Association, Inc. As this assignment form is also an application for membership and obviously belongs to the files of the association, an additional assignment form has been provided, presumably to be filed with the paymaster of the Federal Home Loan Bank Board or the particular affiliate of the board by which the member of the association is employed. This form specifically assigns, sets over and directs the Home Owners' Loan Corporation and the Federal Savings and Loan Insurance Corporation to pay Group Health Association the amount due to that association, out of any salary or wages due or to become due to the member so long as membership continues. This establishes the check-off scheme sometimes employed to binder defections from the ranks of organizations that fear difficulty in maintaining membership and to impose on the employer the burden that properly belongs to the organization of providing a collection agency. Under the check-off system, a member who finds membership no longer advantageous cannot quietly and without explanation cause his membership to be terminated by the simple expedient of omitting payment of dues. He must take affirmative action and resign from the organization, with danger of loss of social standing among his fellows, and he must notify his employer that his membership has been terminated, with the possible loss of esteem by his superior officers if the organization happens to be a pet scheme that they are promoting.

"It is well established, however, that the assignment of government salaries is contrary to public policy. The assignment of any claim against the United States that has not yet been earned is forbidden by statute, and even after a claim has matured it can be legally assigned, if it can be assigned at all, only by conforming with the conditions laid down by statute, and the provisions of this statute have been held to apply to government salaries. So positive are the express and implied prohibitions against the assignment of federal salaries that, when it was deemed desirable that employees of the Department of Agriculture and of the Department of Commerce be permitted to assign their salaries, it was deemed necessary first to procure authority by act of Congress, and even then the authority granted for assignments by employees of the Department of Commerce was expressly limited to assignments made while absent from Washington and employed in the field.

"The check-off scheme planned by Group Health Association, with the apparent approval of the Federal Home Loan Bank Board and its affiliates, gives the premiums or dues that are payable to the association priority over every other claim, moral or legal, against the salary of every member of the association. The association does not undertake to indemnify its members in cash, which would help the member to provide himself and his dependents, in time of sickness and in time of health, with the necessities of life, including medical service, but to indemnify him only in medical and hospital services, and then only to the extent that the board of trustees of the association and its medical staff deem feasible in view of the resources of the association at the moment and of the condition and location of the patient. Dues or premiums under the check-off system must be paid. The insured may use only the remainder of his salary for such supplementary medical service as the association does not provide and for food, clothing, shelter and drugs and other medical and surgical supplies necessary for himself and his dependents. The hired physician of the association is to be assured his wages through the check-off system, even though food, medical and surgical supplies, and sometimes essential service, such as the use of radium and high voltage roentgen therapy, may have to be omitted because of the inability of the employee to provide them. This is in marked contrast with ordinary medical practice, in which the essentials of life and treatment for the patient and his dependents are obtained first, while the physician waits for his fee—and does so gladly when the circumstances of the patient so indicate.

"If Group Health Association succeeds in establishing the check-off system as a proper and lawful way of insuring the payment of the present and prospective debts of government employees, it will undoubtedly prove a boon to labor unions, finance corporations, merchants who do business on the instalment plan, landlords and others, who under the law cannot attach or garnish the salary of an employee of the federal government but who will be able to protect themselves in advance by demanding assignments of federal salaries as securities for debts. If Group Health Association is going to have the check-off system adopted by the federal government for its benefit, there is no reason why any and every other person, whether individual or corporate, may not claim the same privilege.

"MEMBERSHIP

"The original certificate filed by Group Health Association in the office of the Recorder of Deeds of the District of Columbia makes eligible for membership all 'employees of any branch of the United States Government Service other than officers and enlisted men of the United States Army and Navy.' It makes no discrimination on account of race or color. Such employees number 840,159 and are scattered throughout the entire civilized world. These employees and their dependents would probably number 2,500,000 and provide a rather extensive field of medical practice for Group Health Association. The organizers of the association, however, in what they call its by-laws, seek to handicap the civil employees of the federal government who are not employees of the Federal Home Loan Bank Board and its affiliated agencies, by providing that—"

"in case persons other than employees of the Federal Home Loan Bank Board and agencies under its direction shall be designated as eligible for membership, such action shall first have approval of a majority of the board of trustees and a majority of the members of the corporation present in person or by proxy at a regular or special meeting.

"But this restriction, like all others contained in the by-laws, is of little moment; the board of trustees can remove or modify it in any way it sees fit, at any time.

"Membership will be restricted geographically by the by-law by which members and their dependents, to be entitled to avail themselves of the medical services to be performed by the association, must be located in the District of Columbia or within ten miles of its boundaries or must come to the city of Washington for advice and treatment, although the medical director may provide for house calls at points not exceeding twenty miles distant. The potential membership of the association, however, even as thus geographically restricted, will be considerably more than 115,912. To determine the total load to be carried, the dependents of members must be added to the foregoing numbers, possibly an average of two dependents for each member.

"These figures show only the potential membership and load of Group Health Association. What the actual membership and load will be, no one can foretell. If, as has been alleged, there is an undue prevalence of illness among employees of the Federal Home Loan Bank Board or of some of its affiliated agencies, a fair number of the employees who are physically inferior may be expected to join the association.

"Employees, too, who now are deterred from claiming sick leave because of the expense of employing a physician to vouch for the sickness and to furnish the necessary certificate may join the association because it furnishes an easy way to obtain such certificates practically gratis. Illness among the dependents of employees, particularly among those with large families, will tend to swell the membership rolls.

"As affecting the size of the membership, the standards that Group Health Association adopts in determining who may and who may not be a member will be a determining factor. If persons suffering from all manner of chronic diseases and infirmities are readily accepted for mem-

bership, employees may postpone applying for membership until they or one or more of their dependents are manifestly in ill health. Only experience can determine the probable number of members of Group Health Association and of their dependents.

"The physicians employed by Group Health Association are primarily the servants and agents of the association. The records made by them as servants and agents of the association belong to the association. Their primary duty is to the association, not to the patient. They must abide by the terms of their contracts of employment, and those contracts presumably require conformity and compliance with the by-laws and rules of the association. The by-laws and rules of the association expressly provide that—

"The Medical Director shall render such reports as the Board of Trustees shall require.

"Obviously, under this provision of the by-laws, the board of trustees, which includes two representatives of the Federal Home Loan Bank Board, can call for any disclosure whatever concerning the activities of the medical director and physicians and nurses working under his direction, and use, free from any obligation to secrecy, the information thus obtained.

"A member of Group Health Association, as one of the conditions of membership, seems to waive, in favor of the association, his right to professional secrecy on the part of any physician-employee of the association who attends him, and implicitly his dependents, in accepting the services of such physician-employee, likewise waive their right to secrecy.

"AREA TO BE SERVED

"It is difficult to determine the future membership of Group Health Association, it is not so difficult to determine the extent of the area over which it plans to extend even its initial activities. The certificate of incorporation contemplates apparently world-wide service. The by-laws, however, propose to limit the area covered by providing that—" quote:

"To be able to avail themselves of medical and surgical service, the members or dependents must be located in or within ten miles of the District of Columbia line, or must come to the city of Washington, D. C., except that the Medical Director may provide for house calls not exceeding twenty miles.

"This area covers the entire District and considerable areas in Maryland and Virginia and is bisected by the Potomac River.

"The District of Columbia alone covers somewhat more than sixty square miles. An area including the District of Columbia and the territory within ten miles of its boundaries comprises approximately 750 square miles. The territory including the District of Columbia and the region within twenty miles of its boundaries covers approximately 1,950 square miles. It is obvious that to serve even the normal area, covering the District of Columbia and the territory within ten miles of its boundaries, about 750 square miles, will call for the establishment of clinical centers at various points and for liberal provisions for transportation of physicians and nurses and ambulance service. This is based on the announced plan of the association of operating through salaried full-time physicians and not through local physicians paid on a fee basis. The increased difficulties of the situation if a serious effort is to be made to cover the District of Columbia and an area within twenty miles of its boundaries is apparent.

"BENEFITS OR INDEMNITY OFFERED

"Group Health Association proposes to provide its members and their dependents with medical and hospital service. This is to be done through a salaried full-time medical staff, supplemented by a few part-time specialists, through contracts with hospitals, and through nurses when circumstances so require. The medical staff is normally to make home and hospital visits over an area of about 750 square miles and, at the discretion of the medical director, over an area of 1,950 square miles. Patients are to be encouraged, however, to present themselves at a central clinic for treatment. In such an ambitious, untried, project it is not surprising that the board of trustees should have reserved the right to itself and to its medical staff to limit the service rendered whenever either the board or the medical staff sees fit. The association has been careful not to obligate itself to furnish service of any definite kind or quantity. The so-called by-laws of the association expressly provide that—

"Section 4. The corporation will not assume responsibility for furnishing unlimited medical service to members but will do so only to the extent of its resources.

"Section 5. The Trustees shall have the right to determine and modify the extent of the service to be furnished to members at any time they may decide to do so upon written notice to the members to that effect given fifteen (15) days prior to any such change.

"To one familiar with the city of Washington and its environs, the question necessarily arises as to how Group Health Association has solved or proposes to solve the question of service to Negroes employed by the government. Certainly government officers and employees and their dependents cannot be denied membership in the government-financed Group Health Association simply because they are Negroes. The solution will be watched with interest.

"Before considering the service or indemnity that Group Health Association promises its members and their dependents—always subject to the will of the board of trustees and its medical staff—it will be well to consider definitely what it will not do or will do only conditionally. The association will not treat members who suffer from industrial accidents, nor will it perform any surgery on the brain or nervous system. It will not treat venereal diseases, except at the personal expense of the patient, at the rate of 50 cents per treatment. The association will not treat a member or any of his dependents if the medical director has recommended confinement to an institution for mental or tuberculous disease or drug or alcohol addiction. It will not provide its members with (1) dental treatment; (2) medicines; (3) surgical appliances, orthopedic devices, crutches, or artificial limbs; (4) eyeglasses or eyes [sic]; (5) hearing devices; (6) radium or high voltage roentgen treatment";

I don't know what that word is. What does it mean, Mr. Leahy?

Mr. Leahy:—X-ray. That is the name of the man that discovered the roentgen ray.

Mr. Levin:—Roentgen.

"(7) oxygen tanks and tents and materials; (8) blood transfusions; (9) special nursing service, unless ordered by the medical director; (10) treatment, services, supplies, and items of any kind prescribed or ordered by a physician not in the service of the association, or (11) any expense of hospitalization in excess of that allowed by the association. The association will, however, endeavor to procure such merchandise and services for members and their dependents at reduced rates. Additional limitations on any and all services and merchandise furnished by the association may be imposed by the board of trustees at any time on fifteen days' notice, and in any individual case the medical director or his representative is authorized to determine and prescribe the extent of the medical service to be rendered.

"Subject to all the limitations and qualifications stated, and such further limitations and qualifications as the board of trustees and the medical director and his representatives may impose, the association offers its members and their dependents in return for the fees paid—

"Medical and surgical examination and treatments, including examinations in special departments, such as refractions of eyes; laboratory test, x-ray examinations, surgical operations, confinement cases and professional consultations, nursing and ambulance facilities, house calls, and hospitalization in a semiprivate room (2 bed room) limited to a period not to exceed 21 days for any one illness. However, members desiring to occupy a private room may do so, in which case the corporation will contribute the sum of \$4 per day toward the expense of such room for such period. In all hospital cases, the corporation will pay for semiprivate room (2 bed room) service only, except in the case of infectious or contagious diseases, in which cases a maximum of \$4 per day will be paid for said period, not exceeding 21 days.

"As far as can be learned from the certificate filed by Group Health Association and from its by-laws, no member of the association and no dependent of a member is to have any freedom of choice of his physician. Obviously, this must be so, for with a limited salaried, full-time medical staff, operating over an area of 750 square miles or more, it would be impossible for each staff member to cover the entire area daily, to satisfy the desires of members scattered over the entire area. It is understood that the association will not object to a member or a dependent of a member being treated at his own expense by a physician not in the service of the association. As the members of the salaried staff of the association are likely to be looked on by the profession generally in the community as on the outer verge of ethical practice, if not altogether beyond the pale, it is not clear how they are to obtain qualified consultants or procure hospital service for their patients.

"Announcement has not been made at the present writing of the medical staff, beyond the appointment of Henry R. Brown, M.D., formerly of the Veterans' Administration, as medical director. Announcement has not been made of the hospitals in which the association proposes to provide accommodations for its members and their dependents. Quarters for a clinic or laboratory have been rented in the business district of Washington but are not yet equipped. The date originally proposed for inaugurating active medical and hospital service, September 1, has been set ahead indefinitely.

"CONCLUSIONS

"There is no reason to believe that Group Health Association, even if it could lawfully engage in the insurance business and the practice of medicine as it proposes to do, could materially reduce the absence rate among officers and employees of the Home Owners' Loan Corporation or its related agencies. Absences on account of illness might even be increased, for a medical certificate would cost nothing. A physician cannot always deny that a man has a disabling headache, or a woman a disabling menstrual period.

"Since there is no evidence to show that government employees are unable to pay for medical services, there is no reason to believe that the cheapening of medical service will make him more likely to seek medical aid. There is no reason to believe that the character of medical service under the Group Health Association plan can be kept at the same average level of quality as that prevailing in private practice. Especially would quality be likely to fail in times of epidemics and of any unusual prevalence of disease, when the limited medical staff of the association would be overworked and could find no relief. In any event, medical service under the association would be likely to be handicapped by difficulty likely to be experienced in obtaining the best consultant service and hospital accommodations. Physicians who sell their services to an organization like Group Health Association for resale to patients are certain to lose professional status.

"The probable results on the medical profession of the successful operation in the District of Columbia and vicinity even of a single organization such as Group Health Association cannot be estimated.

"Out of a total population of 486,869 in the District of Columbia, 115,912 are civil employees of the United States government, and, of these, 2,517 are employees of the Federal Home Loan Bank Board and its affiliated agencies. If to these persons, all of whom are eligible for membership in Group Health Association, their dependents are added, allowing an average of two dependents for each employee, a total of 347,736 persons is reached, out of a total population of 486,869 that the promoters of Group Health Association, according to their certificate of incorporation, seek to withdraw from the ordinary practice of medicine and to cover into a group health insurance contract practice system and treat through physicians hired for that purpose. The effect of the withdrawal from private practice of even one-half that number of persons, all of whom are able to pay for medical services, will materially disturb medical practice in the District of Columbia and react against public interest.

"Under the scheme proposed by Group Health Association, far greater benefits will accrue to the richer and more liberally paid employees of the Federal Home Loan Bank Board and its affiliates and of such other government agencies as may identify themselves with the scheme than to

"To justify this stand we have to recall and study what changes had been attempted up until now by different sources and what were our reaction to them.

"What we have done is very similar to that what happened over there. Meetings, committees, investigations, comprehensive and comparative studies one after the other all ended up with a protest against any change involving the present mode of practicing medicine thinking that the change of form will ruin the salient principles.

"We shall be very much mistaken if we believe that the mere protest and emphasis on the ethical principles will save them and will block or prevent a change. We may protest and lose the initiative and helm in making a new form of practice of medicine and finally the major part of organized medicine will have to give in and join and serve a scheme which will or may be made without us or against us.

"What organized medicine is concerned the American Medical Association; it took the stand of observation and so far has not proposed or offered a change, expecting a sound change to be evolved by some state or local societies. The Medical Society of the District of Columbia inaugurated what may be one of the noblest and sincerest experiments to tackle this growing problem. I refer to the Central Admitting Bureau and the Medical-Dental Service Bureau for the medical care of people with restricted means. The intentions in planning these institutions were very noble indeed and highly ethical, but seemingly they have no appeal to the masses maybe by lack of publicity or lack in advertising it widely enough. By this scheme we shall have just exceptional cases and not the masses who undoubtedly are seeking and are offered to get medical care in some form of insurance for themselves and their families. If we do not take and get the masses and their continuously inflowing money, laymen or the state are going to do it without us, and probably against us and pay us only crumbs from the lost bread (loaf).

"We do not like and object if physicians outside of our ranks make or try new forms, we despise if laymen do it and we think with abhorrence on socialized medicine installed by the state or politicians as we know that it will be not for the good of the sick as it will kill the ethical fundamentals of practicing medicine.

"Mr. President, we know all about that new scheme which is in the making under the name of Group Health Insurance of the Home Owners' Loan Corporation, which is, maybe, the last warning to us to be wise and to be our masters ourselves.

"Why shall we wait that some one else without our ranks shall make it for us or more probably against our will, against our taste and against our interest? Why not make it ourselves? Are we not as good social planners and businessmen as laymen or politicians?

"We must realize that no matter what extreme social system may replace the present one, the free practice of medicine of today always will remain to certain extent as it exists in countries where extreme socialization is general as there will be always people who will get money to pay the doctor whom they have confidence in.

"On the other hand we know that our chief aim and I may say duty must be to save the cherished principles of our profession and nobody else is going to do it for us. It is a very important issue of professional policy that we must change our tactics and we shall make a change in the way of practicing medicine to accommodate it to the present and continuously growing trend of social changes. Every one of us must know that we make these changes to save the fundamental ethical principles and not to give them up. Every one should know that this will be a political maneuver or a temporary show, if you want to put it up this way.

"Mr. President, the responsibility in this very important matter which every member should feel wholeheartedly makes me to raise my voice in the last hour to suggest and propose that we ourselves shall organize, set up and run a group health insurance type medical service through the Medical Society and in strict collaboration with the American Medical Association. I cannot submit an elaborate plan and I will not argue about details in this hour but I should like to put down the principles and some facts for consideration:

"1. The Group Health Insurance of Organized Medicine would provide for medical services to its members. Everybody may be eligible for membership, except the enlisted men of the United States Army and Navy, and employees with an annual income of \$3,000.00 or above. No discrimination is to be made on account of race or color.

"2. Membership dues are to be \$35 to \$45 yearly. Special family membership dues to be regulated according to the number of dependents.

"3. Medical services may be combined with Group Hospitalization, maybe in conjunction with some insurance companies who offer twenty-one days of hospitalization for 75 cents a month as you all know.

"4. No sick benefits of any kind to be contemplated at any time.

"5. The medical staff will consist of the members of the Medical Society of the District of Columbia. Any member may join the staff voluntarily by paying \$50 to \$100 of initiation fee to get the scheme started (under way). Of course, this service will not interfere with the private practices.

"6. Services to be rendered in the clinic to ambulant patients, to hospitalized patients and in the form of home calls. The Clinic should have a full-time staff and the home calls and hospital care be given by the rest of the staff keeping up the free choice of doctor so far as possible.

"7. The fees paid for these services may be only a fraction of the present fees now but will be and should be raised as the funds grow.

"8. Seventy-five (75) per cent of the Board of Trustees to be duly elected members from the Medical Society to be our master ourselves.

"9. The Central Admitting Bureau to be sustained for its present purpose and free medical service to be rendered to indigents in the free clinics in the various hospitals.

"10. It is understood that at least 15 per cent of the population will be exempted from this scheme and will be subjects of free private practice

with the usual fees, which number of patients will be increased by those who always will get the means and determination to select their own physician to get ideal individual care.

"This is a roughly outlined conception which I submit for your consideration.

"In summary, may I say this:

"(a) All socialized types of medical services heretofore inaugurated by private groups or states (abroad) were all instigated, organized and set up by laymen without us and usually against us. In these schemes laymen or the state were the rulers and the medical men hired and ruled. All of them competed with organized medicine, certainly not with equal and right means. In all of them the fundamental ethical principles of the practice of medicine were omitted or essentially curtailed against the good of the sick. The end was socialized medicine for organized medicine by hesitation and by other factors lost the initiative to offer some scheme itself to prevent this.

"(b) Socialized medicine is just before our doorstep and set up that way that it may spread all over the country like fire.

"(c) So far as I know nowhere and never did organized medicine work out or offer a group health insurance scheme to the public which was set up and governed by the medical man.

"(d) My planned thoughts which are many of yours, if it could be worked out and materialized quick enough, would enable us to create and control this organization ourselves and not be left at the mercy of politicians or racketeers. We shall gain the sympathy and confidence of the masses and if we succeed financially we shall make not only a decent living but also save the ethical fundamentals of our profession. I am sure we may prevent or at least lessen the dangers of socialized medicine under political bureaucracy. We shall have in this organization a more advanced and higher type of medical service than they abroad as it will be ethical and sincerely socially minded indeed.

"Mr. President, I move that this problem and proposition be sent to the Executive Committee for urgent study and be formulated, if accepted, by a special legal committee elected by the Society and brought to the floor as soon as possible.

"Furthermore, I move that this plan, if worked out, be communicated to the American Medical Association for urgent consideration with the suggestion that it be adapted and introduced all over the country under itsegis and direction as home office."

Mr. Kelleher:—Exhibit 111 is an original letter from C. B. Conklin, secretary of the Medical Society of the District of Columbia, to Dr. Olin West, Secretary of the American Medical Association, Chicago, dated Oct. 9, 1937:

U. S. EXHIBIT 111

"Dear Dr. West:

"I thank you for your letter of October 6, 1937.

"Personally I wish to express my pleasure and appreciation of learning your reaction to anything that may be proposed that would affect the doctor's best interests. I am happy to state that the Society, in session on the evening of October 6, adopted the following:

"WHEREAS, The Bureau of Legal Medicine and Legislation of the American Medical Association has prepared and published a comprehensive report on the activities of Group Health Association, Inc.; and

"WHEREAS, The Medical Society of the District of Columbia is in full accord with the content of said report, both as to the established facts set forth therein and the implications drawn therefrom; therefore, be it

"Resolved, That the Medical Society of the District of Columbia cause a copy of said report to be sent to each of its members as an indication of its future policies with respect to combating the activities of said Group Health Association and also with respect to the ethical responsibilities of the Medical Society of the District of Columbia and of its individual members.

"This appears to eliminate what might have an undesirable statement of policy.

"Sincerely yours,

"C. B. Conklin."

Exhibit 110 is a carbon copy of an original letter written by defendant West in Chicago to C. B. Conklin, dated Oct. 14, 1937:

U. S. EXHIBIT 110

"Dear Doctor Conklin:

"I am greatly obliged to you for your letter of October 9 in which you present the resolution adopted by the Medical Society of the District of Columbia at its meeting on October 6. I am, of course, greatly pleased at the decision of the society.

"I am looking forward with pleasure to seeing you here at the Annual Conference of Secretaries of Constituent State Medical societies on November 19 and 20.

"Sincerely yours,

"Olin West."

Mr. Lewin:—I shall read from the minutes of the Executive Committee of the Medical Society of the District of Columbia, held Oct. 11, 1937:

"Dr. William Mercer Sprigg, Chairman, presiding.

"Present: Drs. Daniel L. Borden, C. N. Chipman, A. C. Gray, Raymond T. Holden Jr., R. Arthur Hooe, H. C. Macatee, F. X. McGovern, Thomas E. Neill, John F. Preston, John A. Reed, E. Hiram Reede, Sterling Ruffin, Earl R. Templeton and C. B. Conklin.

U. S. EXHIBIT 37

"At the conclusion of the reading of the minutes of the preceding meeting, held September 27, 1937, Dr. Sterling Ruffin was recognized. He said he did not think that the Secretary had reported exactly what Dr. R. Arthur Hooe had in mind and would suggest that the minutes be changed to cover the situation. Dr. Ruffin added that Dr. Hooe proposed about the same thing some time previously before the Executive Committee as he did on the occasion for which the minutes were recorded. "The Secretary stated that he would change the minutes according to Dr. Hooe's intent."

Now, some other matters were taken up that are not germane to our case, and we turn to page 3:

(Reading):

"The next motion that Dr. Hooe had to make was that the Executive Committee recommend that the Secretary of the Society address a letter to every civilian hospital Board of Directors in the District of Columbia, informing them of the particular sections of the Constitution that had to do with approval of contracts and warn the hospitals that if they failed to cooperate in every way that they might not be on the approved list.

"Much discussion ensued, Dr. W. M. Sprigg reading a prepared letter that he had already arranged to send to the hospital directors relative to this matter.

"Finally, it was adopted to approve the letter as prepared by Dr. Sprigg with numerous amendments.

"Dr. Macatee thought that Chapter VII, Article 4, Section 4 of the Constitution should be drawn to the attention of the members in addition to Chapter IX, Article IV, Section 5.

"(Dr. Sprigg was asked by the Secretary for a copy of the letter. He said that he would take it home and revise the letter and later send it to the Society's office.)

"Dr. Hooe was again recognized. He stated that there were some 117 women physicians practicing in Washington and about 12 were members of the Medical Society of the District of Columbia; also there were large numbers of doctors in the city that were in practice and were not members of the Society. This statement was made particularly in rebuttal to a proposed recommendation that the hospitals approve for their courtesy staffs and their regular staffs only members of the Medical Society of the District of Columbia. Without the fold of the Society were a number of 'good doctors.'

"Dr. John A. Reed at this point was recognized."

Then follows some other matters:

(Reading):

"He stated in his opinion the American Medical Association should follow through and duly notify the District Attorney, Corporation Counsel, and other legal officials of the apparent violation of law that Group Health Association, Inc., would violate when and if they start to operate.

"Much discussion ensued.

"The recommendation was finally adopted that the American Medical Association authorities be communicated with and they be asked to send to the Insurance Commissioners, the Commission on Licensure, the District of Columbia Commissioners, the United States Attorney for the District of Columbia, and the Corporation Counsel, substances of the article that appeared in the October 2, 1937, issue of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (Organization Section, p. 39B), and that if the American Medical Association refused or would not comply, then the Secretary send a reprint of said article to each of these officials.

C. B. Conklin,
Secretary."

FEBRUARY 20, AFTERNOON

Mr. Kelleher:—I now read from the minutes:

U. S. EXHIBIT 37

"Minutes of the special meeting of the Medical Society of the District of Columbia held Friday evening, October 15, 1937, 8 p. m.

"Dr. Thomas E. Neill, President, presiding.

"Present: Drs. A. C. Christie, Harry F. Anderson, Claude Moore, Howard P. Parker, E. Kirby Smith, R. J. Jansen, Thomas A. Groover, E. A. Merritt, Edgar M. McPeak, F. X. McGovern, William P. Herbst Jr., Prentiss Willson, William H. Hough, W. Warren Sager, F. C. Fishback, C. N. Chipman, Charles B. Campbell, Joseph S. Wall, and other members to the number of about one hundred and fifty-five."

I will omit reading the first six and a half pages and begin on page 7:

"Dr. W. M. Sprigg asked consent to read a letter addressed to the Boards of Directors of the various hospitals in the city. Consent was granted.

"Dr. Sprigg read the following:

"October 15, 1937.

"Board of Directors of

..... Hospital,
Washington, D. C.

"Gentlemen:

"The Medical Society of the District of Columbia desires to call your attention to Chapter IX, Article IV, Section 5 of the Constitution, as follows:

"No member of the Society shall engage in any professional capacity whatsoever with any organization, group or individual, by whatever name called or however organized, engaged in the practice of medicine within the District of Columbia or within 10 miles thereof, which has not been approved by the Society.

"The Executive Committee is authorized and directed to prepare an approved list of organizations, groups and individuals, by whatever

name called and however organized, engaged in the practice of medicine within the District of Columbia or within 10 miles thereof, and the same shall be kept in the office of the Secretary-Treasurer. Before any such organization, group or individual can be placed on the approved list of the Society, such organization, group or individual, or the member of the Society proposing professional relations therewith, shall submit to the Compensation, Contract and Industrial Medicine Committee such evidence as the Committee or the Society may require showing the character, activities, financial condition and ethical standards of said organization, group or individual, and after considering the same, said committee shall make a report of its investigation and findings to the Executive Committee for such action as it may deem necessary."

The letter continues:

"Also, Chapter IX, Article IV, Section 1, as follows:

"Members shall not accept appointment to or continue to serve upon the medical staff of any hospital or dispensary which is not approved by the Society. A list of approved hospitals and dispensaries shall be available in the Society's office."

"WHEREAS, The Medical Society is using its earnest efforts to give to the people of the District of Columbia the most advanced and best possible medical care, we, therefore, ask your cooperation by aiding us to carry out this principle.

"In view of the above Sections of the Constitution of the Medical Society of the District of Columbia, we hope that your board will see the advisability of making such regulations in your Hospital, so that they may be in accord with and support our efforts.

"Respectfully yours."

"Dr. Thomas A. Groover was recognized. He felt that this letter was important enough that each member of the Society should have an opportunity to study it rather carefully. He suggested that action be deferred until members of the Society had received copy through the Society's office. He made this in the form of a motion to the effect that copy be mailed to each member of the Society and be brought up at the next business meeting. Seconded and motion finally adopted."

I now go to the next page:

"Dr. W. J. Stanton would inquire if this attorney for the Society had passed on the advisability of sending this letter.

"Dr. Charles P. Cake would inquire what the purpose of this letter was; what is supposed to be accomplished by the letter?

"Dr. Sprigg replied that the letter was self evident, if one stops and thinks when he reads it. He pointed out that the Society has been trying to improve itself—to clear its own skirts. He called attention to the policy which had been established for years when hospitals allowed only those members to practice on their staff who were approved by the Board of Directors. He called attention to the differences with Columbia Hospital because the Board of Directors did not approve some member on its staff. It wasn't realized that the Board of Directors had the right to say who shall practice in their hospital. The members of the Society have a perfect right to say who shall be members of the Society. This letter was merely asking the hospitals to cooperate; nobody was being hit at. He called attention to the fact that one hospital in the city passed a resolution in its board stating that only members of the American Medical Association could practice in that hospital. Dr. Sprigg said the Society does not require that at all; merely that a man who practices in the District of Columbia must be approved by the Society. He pointed out that there are some in the district who are not members of this Society who are just as ethical as he or any one else. They are on the approved list but are not members of the Society. This letter does not keep those members out of the hospitals. He reiterated that all to be accomplished was to ask the cooperation of the hospitals to help keep the skirts of the Society clean.

"One member would inquire if it was meant that members of the Society would not be permitted to practice in a hospital that did not subscribe to an approved list; in other words if they attempt to practice in a hospital not approved by the Society the members of the Society would be duty bound to keep clear of that hospital?

"Dr. Sprigg answered that that was correct. He added, 'You have turned a man out of this Society; why? for good reasons. Now are you going to cooperate and consult with him?'

Mr. Kelleher:—Now I omit a portion.

Mr. Leahy:—Won't you get to the point of what the other members said about it?

Mr. Kelleher:

"Dr. Thomas A. Groover was recognized. He felt that this letter was important enough that each member of the Society should have an opportunity to study it rather carefully. He suggested that action be deferred until members of the Society had received copy through the Society's office. He made this in the form of a motion to the effect that copy be mailed to each member of the Society and be brought up at the next business meeting."

"Dr. Reed arose to a point of order, stating that Dr. Sprigg's discussion was irrelevant to Dr. Groover's motion.

"Another member said that if he received a copy of the letter tomorrow he would not know what the letter was meant to convey.

"Dr. William M. Ballinger pointed out that this letter was merely calling the attention of the hospitals to certain resolutions and constitutional provisions of the Society, asking their cooperation. To his mind it was simply a routine letter asking for cooperation. He could not understand why a copy should be sent to every member of the Society.

"Dr. Martin M. McLean would inquire who is going to help the hospitals interpret the letter; they may have the same questions arise in their minds.

"Dr. Daniel Davis favored Dr. Groover's motion, stating that he would be interested in seeing the letter before voting on it."

ORGANIZATION SECTION

Mr. Levin:—And the motion was finally adopted. Now I read from the last paragraph:

"Dr. W. M. Sprigg at this point read a recommendation from the Executive Committee to the effect that the American Medical Association authorities be communicated with and they be asked to send to the Insurance Commissioners, the Commission on Licensure, the District of Columbia Commissioners, the United States District Attorney for the District of Columbia, and the Corporation Council, substance of the article which appeared in the October 2, 1937, issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Organization Section, page 39B), and that if the American Medical Association refused or would not comply, then the Secretary send a reprint of said article to each of these officials."

"Dr. H. H. Schoenfeld called a point of order, stating that no notice of this business appeared on the announcement for this meeting. The Chair sustained the objection."

"I shall read from the minutes of the regular meeting of the Executive Committee of the Medical Society of the District of Columbia, held October 25, 1937, 8 p. m."

"Dr. E. Hiram Reede, Vice Chairman, presiding in the absence of Dr. W. M. Sprigg."

"Present: Drs. E. G. Breeding, A. C. Gray, R. Arthur Hooe, F. X. McGovern, Thomas E. Neill, John F. Preston, John A. Reed, E. Hiram Reede, Henry R. Schreiber, W. M. Sprigg, E. R. Templeton and C. B. Conklin."

"The minutes of the previous meeting, held October 11, were read and approved."

Then certain other matters were dealt with.

Mr. Leahy:—One of them might be interesting.

Mr. Levin:—Do you mean about the meeting for the purpose of witnessing "The Birth of a Baby"? Well, I won't go into that. There is a note of humor in it. Let's get along:

"At this point Dr. Thomas E. Neill addressed the committee, stating that he had received an invitation from the Home Owners' Loan Corporation Group Health Association in the form of a letter, with enclosed ticket, to a banquet to be held at the Mayflower Hotel on the evening of October 30. He spoke of his contacts with Mr. John Childress, who was very active in the group clinic affairs. Dr. Neill added that he had been Mr. Childress's family surgeon and had charged no fees since 1930. Mr. Childress offered him the position as surgeon in the present setup, which he had refused. Dr. Neill was interested in getting some instructions from the committee as to how he should answer the letter."

"It was finally thought advisable to have Dr. Neill's secretary answer the letter, using the third person, stating his inability to be present."

"It appeared that the banquet would be addressed by Dr. Richard Cabot, professor of clinical medicine at Harvard University. Dr. Neill stated that he knew Dr. Cabot when he was working in the Massachusetts General Hospital. From those contacts and from the editorials that had appeared in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, criticizing Dr. Cabot's views on various sociological problems, that the sending to Dr. Cabot of a statement of attitude of organized profession toward the Home Owners' Loan Corporation setup would be unavailing and inadvisable."

"Then certain other matters were dealt with."

Resolved, That the Chairman of the Executive Committee shall appoint a Subcommittee of the Executive Committee consisting of five members of the Executive Committee to study in detail the entire question of prepaid insurance medicine as conducted by or may be conducted by or controlled by reputable acceptable physicians, or by local, county or state societies."

"Further, The Committee so appointed shall investigate so far as possible the following points: the need of such practice, the legality in reference to our Society, workability in other localities, the sentiment of the American Medical Association in regard to medical Society controlled practice, formulation of a plan of prepaid insurance medicine to be used whenever in the future it might be deemed advisable or necessary to undertake such a practice, and such other problems pertaining to this practice or considered by the committee worthy of study."

"Further, The Secretary of the Society shall be a member of this subcommittee and act in the capacity of secretary to it."

"Further, That the facilities of the Secretary's Office be available for use by this committee."

"Further, This committee shall report to the Executive Committee when its work is complete or on call of the Executive Committee and not later than the last Executive Committee Meeting of the current Society year."

"In the discussion, the Secretary pointed out that the American Medical Association's attitude was very well known, that the headquarters was unalterably opposed to the development of any prepayment plan for the reason that tacit approval might be given to the United States Government or to any other setup to proceed in the organization of clinics. Further, experience showed that great rivalry developed when the organized profession in certain cities in the state of Washington started prepayment clinics. Prices were cut along with salaries of the physicians doing the work. Dr. Olin West, in telephone communication from Chicago, had stated definitely that he would not care to be in a position of influencing any action the Medical Society might want to take, but he offered adverse criticism of the development of any prepayment plan, particularly by the profession of Washington."

"Motion was made that the resolutions presented by Dr. Reed be adopted. Seconded."

"Dr. R. Arthur Hooe made a motion to amend the resolutions to include in this special committee membership the President of the Society and the Chairman of the Executive Committee. Seconded."

"Motion with amendment was duly adopted."

Mr. Kelleher:—Exhibit 203 is a telegram from John F. Hayes to Dr. William C. Woodward, dated Oct. 29, 1937:

U. S. EXHIBIT 203
"Group Health Association medical staff announced. Drs. Brown, Raymond E. Selders, Allan E. Lee, Edmond D. Wells, R. Stephen Hulbert, M. Scandiffio. Stop. Home Loan Bank Board has granted \$20,000 a year for two years to association."

Mr. Kelleher:—Exhibit 114 is a carbon copy of an original letter written by Dr. Olin West in Chicago and addressed to Dr. C. B. Conklin, Secretary, Medical Society of the District of Columbia, dated Oct. 29, 1937:

U. S. EXHIBIT 114

"Dear Dr. Conklin:
"I have just been informed that the Group Health Association has announced the names of the members of its professional staff, as follows: Dr. Brown; Dr. Raymond E. Selders; Dr. Allan E. Lee; Dr. Edmond D. Wells; Dr. R. Stephen Hulbert, and Dr. M. Scandiffio. Our records indicate that only two of these men are members of the American Medical Association, namely, Drs. Allan Edward L. Lee and Mario Victor Scandiffio. Both of these men have been reported as members in good standing in the Medical Society of the District of Columbia and Dr. Scandiffio has qualified as a Fellow of the American Medical Association."

"I am informed that the Home Loan Bank Board has agreed to provide \$20,000 a year for two years for the use of the Group Health Association."

"All of this makes it appear that both the Group Health Association and the Home Loan Bank Board have definitely determined to proceed with their plans in spite of all protests that have been lodged against such procedure."

Mr. Kelleher:—Exhibit 112 is a carbon copy of an original letter written by the defendant, Dr. West, to W. H. Tibbals, Executive Secretary, Utah State Medical Association, Salt Lake City, Utah, dated Oct. 29, 1937, reading as follows:

U. S. EXHIBIT 112

"Dear Mr. Tibbals:
"I have before me your letter of October 26.
"The American Medical Association has very actively opposed the plans of Group Health Association, Incorporated, as has the Medical Society of the District of Columbia, but, in spite of all the efforts that have been put forth, I have within the last thirty minutes received information from Washington to the effect that the Group Health Association, Incorporated, has announced the names of its medical staff and that the Home Loan Bank Board has agreed to provide \$20,000 a year for two years to finance that association. If you will be good enough to examine THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for October 2, you will find an article dealing with this matter."

"We have taken the position that since the practice of medicine by corporations has been declared to be illegal by many states, no agency of the federal government is justified in using federal funds to finance a corporation that intends to engage in the practice of medicine. I understand that some of the promoters of Group Health Association, Incorporated, have taken the position that since licensed physicians are to be employed who will provide medical service for the members of that incorporation, the corporation can not be considered as practicing medicine. That contention has, of course, no merit whatever."

The last paragraph isn't important.
Exhibit 113 is a letter from Dr. West to Dr. Tibbals, written Nov. 6, 1937:

U. S. EXHIBIT 113

"Dear Mr. Tibbals:
"I am very glad indeed to have your letter of November 4.
"Since I wrote you last, the Group Health Association, Inc., has begun operations. The Home Loan Bank Board has agreed to finance the movement by providing \$20,000 a year from its funds for two years. The names of the medical staff, composed of six or seven men, have been announced. Only two are members of any component county medical society or any constituent state medical association. The American Medical Association and the Medical Society of the District of Columbia have opposed the movement to the fullest possible extent but without success."

It is signed by West.

Mr. Levin:—I will read from the minutes of the stated meeting of the Medical Society of the District of Columbia, held Nov. 3, 1937, 8 p. m.:

U. S. EXHIBIT 37
"Dr. Thomas E. Neill, President, presiding.
"Present: Drs. James A. Cannon, H. R. Schreiber, Albert P. Tibbels, Arch L. Riddick, Frank S. Horvath, H. S. Bernston, Henry B. Gwynn, A. Barklie Coulter, S. B. Muncester, Frank L. Willman, H. P. Ramsey, Fred A. J. Geier, J. H. McLeod, A. J. Connolly, Prentiss Willson, William P. Herbst, W. W. Chase, F. X. McGovern and other members to the number of about one hundred and sixty."

"The Minutes of the preceding meeting, held Oct. 27, 1937, were read and approved."

JOUR. A. M. A.
MARCH 8, 1941

Now, there were other matters taken up which I am going to omit, if it is satisfactory to counsel. All the first portion, until we get right down to the middle of page 5:

"Dr. Sprigg, in continuing, read the following:

"WHEREAS, The Bureau of Legal Medicine and Legislation of the American Medical Association has made a careful investigation and analysis of the Group Health Association, Inc., and published its report in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION under date of Oct. 2, 1937; and

"WHEREAS, The Medical Society of the District of Columbia is in full accord with the implications therein set forth; therefore, be it

"Resolved, That the Executive Committee of the Medical Society of the District of Columbia is hereby authorized and directed to take such steps as may be necessary, first, through the American Medical Association and if that fails, second, through its own initiative to inaugurate a program of information through the State Medical Associations and other sources of the dangers of lowering the standards of medical care to be given Government employees in the Home Owners' Loan Corporation organization and other Government agencies as found in the rules of the Group Health Association, Inc., and many other reasons why it is contrary to sound public policy.

"Dr. Sprigg reiterated that the only way to combat this thing would be through the aid and influence of the medical men all over the United States.

"Dr. Sprigg in continuing read further recommendations from the Executive Committee.

"Upon motion by Dr. Prentiss Willson, duly seconded, that the recommendations be considered seriatim. Adopted.

"Dr. Stanton was asked if he wished to withdraw his resolutions. He said he did not.

"Dr. Prentiss Willson said he wished to endorse Dr. Stanton's resolution and he hoped it would prevail. He thought there were three propositions which came before the Society which offer a way out of the wilderness, which he did not see in the elevation of the dues. He did not feel that an Executive Secretary would have any effect on the situation. He felt that it was common sense to find out where the Society stands legally in this matter. The thing is either legal or it is not legal. He thought the financial resources of the Society should be conserved so as to obtain that legal opinion. If the matter is illegal it should be ascertained how it may be successfully attacked in the courts. He thought that was common sense. Second, he was of the opinion that the Society should have some plan to offer whereby the public may be able to obtain better medical service. 'Certainly we can give them a better staff than the one published for the H. O. L. C.' The third thing had to do with the American Medical Association. The Home Owners' Loan Corporation plan was like an illegitimate child left on our doorstep. It is not necessary for us to board it for the rest of its life; the matter is for the public as a whole and the police in this situation should be the American Medical Association. He felt that the thing for the Society to do, tonight, would be to pass resolutions demanding that the American Medical Association do something about it. 'Then if the A. M. A. refuses there are ways to influence politicians, gentlemen—politicians listen to votes.' He cited the action of the House of Delegates of the A. M. A., 'if you do not accept our demand and do something we are going to approach directly every state medical association in the country and we are going to demand from them that they demand from you that you take action in this matter.' 'That in my opinion is the answer to the H. O. L. C. and not to put in a full-time executive secretary unless he might be a Farley, Roosevelt, etc.'

"Dr. R. Arthur Hooe would ask Dr. Willson a question: 'In the event that it is found to be legal would you tell us what you recommend?'

"Dr. Willson said that assuming that it is found to be legal then the only thing for the Society to do would be to adopt and give the public something very much better.

"Dr. Hooe, in continuing, stated that he wanted to support the preliminary remarks made by Dr. Stanton, support the remarks made by Dr. Vann and certain remarks made by Dr. Willson. The most important thing was to impress upon the minds of the members that this problem was a national problem. 'If there is something this Society can do and will do to impress that upon the American Medical Association it is of the greatest vital importance. Under new business it will be vitally important that I, as chairman of the C. C. & I. M. Committee, bring a matter to your attention involving the stepping in of that committee in a matter in connection with the H. O. L. C. In the meantime I sincerely trust that Dr. Stanton's resolution, as I have followed it carefully, will not carry.' He felt that it would be psychologically deadly for the Medical Society to step in and do the things suggested in Dr. Stanton's substitute. Public opinion would be that the members of the Society were failing to get funds in their pocketbooks. He thought it wise to wait a little while before stepping in; that it must be taken into consideration that the Society appearing as a complainant should realize that it is not consistent with the charter, which is created to incorporate the Society for the sole purpose of advancement of medical science. The charter would probably be taken away and the Society's property would immediately be attached. Therefore, Dr. Hooe was of the opinion that the Society must step cautiously. Dr. Hooe said the membership should not think for one moment that the Executive Committee was not busy with this matter. For months the Committee has worked diligently and will continue to do so.

"Dr. Stanton said he did not mean to give the impression that the committees were not busy.

"Dr. Philip A. Caulfield pointed out that concerted effort should be made to get within the membership of the Society some 600 or 800 members of the profession who are not on the rolls. Many of these men don't belong because of indifference and some feel that the Society does not offer them anything. It now so happens that their livelihood is jeopardized. He thought this was an opportune time to make a drive to get these men in the Society. He quoted a form letter that should be circulated to the prospective members stating the situation that has

arisen and urging these men to become members of the Society. 'Unless we take that action we are going to have a lot of men jumping over the fence when this thing gets too big for us.'

Now I will omit something and turn to the next page.

Mr. Leahy:—I think they have been talking so much about this resolution, the Stanton resolution on page 3, it might be well to go back to that.

Mr. Lewin:—Do you wish me to do that?

Mr. Leahy:—Please.

"Dr. William J. Stanton was recognized in the discussion. He offered the following substitute for the recommendation of the Executive Committee:

"WHEREAS, It is reported to the Medical Society of the District of Columbia that the Group Health Association, Inc., a corporation organized under the laws of the District of Columbia, proposes to and is now engaged in the practice of medicine in the District of Columbia, Maryland, Virginia and possibly other states; and

"WHEREAS, In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION on Oct. 2, 1937, Volume 109, pages 39B to 46B, an article was published disclosing in substance that the said Group Health Association, Inc., cannot be licensed to practice medicine in the District of Columbia, and that the United States District Attorney for the District of Columbia and the Corporation Counsel for the District of Columbia have both held that a corporation cannot lawfully engage in the District of Columbia in the practice of a profession that requires licensure or registration as a condition precedent to the lawful practice thereof, even though the corporation undertakes to practice through licensed or registered agents; and

"WHEREAS, The Executive Committee of the Medical Society of the District of Columbia has made certain recommendations to the Medical Society for the District of Columbia regarding the said Group Health Association, Inc.; and

"WHEREAS, Said recommendations do not indicate that the said Executive Committee made a complete and thorough investigation of the purposes and activities of the Group Health Association, Inc.; and

"WHEREAS, Said recommendations do not disclose that the said Committee had or obtained the advice and assistance of counsel; and

"WHEREAS, The said article that appeared in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION makes no recommendations whatsoever as to what, if any, steps this association should take in the premises; therefore, be it

"Resolved, By the Medical Society of the District of Columbia at a meeting duly called on the 3d day of November, 1937, that the recommendations of the Executive Committee be recommitted to said committee, and that said Executive Committee is hereby authorized and directed to investigate and determine whether or not in its judgment the Group Health Association, Inc., is engaged in the unlawful practice of medicine in the District of Columbia as prohibited by Section 152 of the Code of the District of Columbia, 45 Stat. 1338, Chapter 352, Section 41, February 27, 1929; and that said Executive Committee is hereby authorized and directed to obtain the assistance and advice of counsel in its investigation of the said Group Health Association, Inc., and to institute and prosecute in the name of the Association and/or for its benefit, and/or for the benefit of the members thereof, and/or in the name of the said Committee, as such Committee in addition to the names of one or more individual members of the said committee, such actions as in their judgment and discretion may be deemed appropriate and proper for the suppression of the unauthorized practice of medicine in the District of Columbia; and be it further

"Resolved, That the said Executive Committee should be and is hereby instructed that in instituting and prosecuting such actions, no exceptions should be made as to any firm, person and group or class of business or occupation which such person, persons or organizations are alleged to engage in the unauthorized practice of medicine and in which the said Committee feels action should be instituted whether for declaratory judgment, injunction or other relief; and be it further

"Resolved, That for the purpose of prosecuting any such action or actions so instituted by said committee, the said committee shall continue in office as a Standing Committee of this association until the conclusion of such litigation, and that said committee shall be charged with the conduct of such litigation to a conclusion, and that the necessary expenses thereof shall be defrayed by this association; provided, that no member of said committee shall receive any remuneration for services in such connection.

"Motion was made that the foregoing resolutions be adopted. Seconded."

Mr. Lewin:—Now, turning back to page 8. Have you something, Mr. Richardson?

Mr. Richardson:—Yes, on page 3; it is not on the same page in your record. There is a notation that this resolution was withdrawn.

Mr. Lewin:—That is right. That is the reason I didn't read it. Anything else?

Mr. Richardson:—Yes. You had gotten to the point of what Dr. Caulfield said.

Mr. Lewin:—Yes. Do you want me to go along with that?

Mr. Richardson:—Yes, if you will.

Mr. Lewin:

"Dr. J. H. McLeod felt the Society should attempt to find out how much backing the H. O. L. C. has from the United States Government. Personally he was sure they had plenty of backing from the Government and when the Society fights this thing it is fighting the Government. He urged caution. They can very quickly make it legal.

"The operations of Group Health Association, Inc., began on Monday last. Two members who contracted with Group Health Association, Inc., were members of the Medical Society of the District of Columbia, and a third had sent in his application, which has been withdrawn within the past ten days. There is nothing to be done about this third member at the present time. The resignations of the other two were received by the Medical Society of the District of Columbia within the week. A letter was sent to each of them asking him to appear before the Compensation, Contract and Industrial Medicine Committee. They did not appear but the committee received a communication from one of them. The committee unanimously recommended to the executive committee of the Medical Society of the District of Columbia that disciplinary measures be taken.

"Dr. Woodward raised the question as to whether the notice to these members had told them of the charges that were to be preferred against them and stressed the necessity for following strictly the procedure as laid down in the constitution and by-laws of the Medical Society of the District of Columbia. Further discussion was deferred to a time when it could be gone into in detail by Dr. Woodward.

"Dr. Hooe: There is no use to go into the demerits of the H. O. L. C. health movement since the attitude of the Medical Society of the District of Columbia is known, but it is necessary to discuss the difficulties that confront the medical profession in Washington because of this movement, which is the entering wedge of socialized medicine in the United States.

"Dr. Hooe, in reply to Dr. West's statement that the inference in his statement has been that the American Medical Association has done pretty well as a scientific organization but has not concerned itself with more than scientific medicine, said that the statement was made in the broadest possible terms. Dr. West was not absolutely sure what the record will show, but he was inclined to think that the American Medical Association had been fighting H. O. L. C. before the Medical Society of the District of Columbia became actively interested.

"Dr. Hooe then presented figures to show that out of a total population of 619,000 in Washington, after certain deductions were made for government employees, Negroes, etc., there remained a total white population of only 189,127 including indigents and that all classified physicians of Washington numbered 2,100.

"Dr. Hooe: The people in Washington are without suffrage, the entire city, including prosecuting attorney and corporation counsel, being selected by the Administration, and it is reasonable to expect such appointees to cater to the desires of those to whom they turn for their bread and butter, so that this matter has to be gotten at through Congress. Who is best qualified to reach the man in Congress, the little state medical society at Washington or the doctor at home through the states? Who will suffer from the experiment? Will not the entire medical profession? It is quite clear what will happen to the medical profession at Washington.

"Dr. West: Dr. Hooe has not made one statement of any kind that the American Medical Association has not fully considered and acted on where possible.

"Dr. McGovern: Since the Group Health Association, Inc., has started, the medical profession in Washington has become acutely aroused and the question is What shall the Medical Society of the District of Columbia do? The resolution introduced before the Medical Society of the District of Columbia suggested immediate legal action, but some thought that possibly some other plan might be offered. The Medical Society of the District of Columbia is in a quandary to know what to do and is seeking guidance here.

"Dr. Hooe: Some young people in the Medical Society of the District of Columbia are very much aroused and one of them introduced a resolution which stated in substance that the Society should get busy and prosecute at once regardless of what happens. The resolution was withdrawn only on condition that two delegates be sent immediately to Chicago to confer with the American Medical Association to see what could be done about this.

"Dr. West: It is quite possible that the situation in the District of Columbia is no worse than that which may develop in some other places, as for instance in Denver. Denver has relatively as large a government population as Washington and, perhaps, larger. In some states work is being done in contacting individual members of Congress on this matter. An effort is being made to see if members of Congress can not be stimulated to oppose this movement.

Dr. McGovern presented a statement to indicate the uselessness of Washington men attempting to contact men in Congress.

"Dr. McGovern: It seems that the intelligent way to go about this thing is politically and it would seem the wisest thing to do would be for the parent organization to contact the private physician of every congressman and senator and carry on a campaign that way.

"Dr. West: Political attempts always bring reprisals.

"Within a few days there will be a conference of secretaries and editors of state medical associations and one of the things that will be discussed is this H. O. L. C. matter. The Board of Trustees has been considering this thing for a long time and has given instructions to oppose it.

"To Dr. Hooe's question as to whether or not the American Medical Association has exhausted all means of combating this thing, Dr. West replied that it certainly had not and had no idea of quitting.

"Dr. Hooe: Do you not believe that the press all over the country should be directed to state to the people in no uncertain terms the fact that the American Medical Association opposes such practice and why?

"Dr. West: A conference of capable newspapermen was held here a few days ago and this among many other subjects was discussed, but the principal interest of the newspapermen is the method of securing and publishing news. There are radicals among newspapermen as well as among congressmen and physicians. The Committee of Physicians, a self-constituted body, has secured signatures of about 400

—out of 106,000 members of the American Medical Association—physicians evidently to show that the policies of the American Medical Association do not represent the feeling of a large element of physicians. Newspapers are playing that up.

"Dr. McGovern: The Society feels very definitely that it should have some kind of expression from the American Medical Association as to what it might do or is doing or can do in relation to the national aspects of this thing.

"Dr. West: The American Medical Association tried to utilize the services of some of the most important people in Washington to get at the bottom of this thing when it was first started, before the Medical Society of the District of Columbia ever raised a finger about it, but we could not get a copy of the contract or information that was definite or authentic in spite of all efforts to do so. This isn't so easy that all that is necessary is for the American Medical Association to say something. The American Medical Association will do the best it can. Its views are thoroughly understood in official circles in Washington, but that doesn't seem to make any difference.

"Dr. Hooe: Their own legal bureau informs them it is entirely legal.

"Dr. Woodward: No question about the illegality of it.

"Dr. Hooe: Assuming that it is illegal, this Administration can very easily make it legal.

"Dr. Woodward and Dr. West did not agree that it would be so easy to legalize it.

"Dr. West: Nothing can be accomplished by a great public upheaval. A very considerable number of the newspapers of this country are more or less convinced that there will have to be some extremely radical changes in medical practice, including some form of insurance and some form of government insurance. The American Medical Association does not agree. It does not approve any compulsory sickness insurance and has great fear of voluntary sickness insurance because the history of compulsory sickness insurance shows that voluntary sickness insurance has been the forerunner.

"Dr. McGovern: Do you feel that the medical profession is rendering medical service to the people as well as it could or should?

"Dr. West: It is doing it better than any other profession on the face of the earth. The situation will never be ideal because many persons won't take medical service when it is easily available. Replies to a questionnaire sent out by the American Medical Association definitely disproved the statement to the effect that one third of the people of this country were not getting and could not get needed medical service.

"Dr. McGovern: Do you think that this country will eventually escape sickness insurance?

"Dr. West: I don't know, but I am quite certain that sickness insurance systems in older countries are not operating as satisfactorily as some would have us believe and I think that it is probably true that some of them are losing ground.

"Dr. McGovern read an abstract from a paper he had presented over four years ago as retiring president, showing the indifference of medical organizations.

"Dr. West: The only organization in this country that did not exhibit smug indifference to the trend toward centralized control of medicine was the American Medical Association.

"Dr. McGovern: Do you feel that everything is all right in American medicine today? Realizing that the United States is now the only large nation that has not some form of centralized control of medicine, what is behind it as far as the people are concerned? Why all these different types of practice springing up in the United States, if behind it there does not seem, in the minds of laymen and of some physicians, to be some need?

"Dr. West: The American Medical Association thinks there is 'a need.' There always has been and always will be as long as there are advances in medical knowledge. But the organized medical profession has tried hard to have the need met and has done very well under all the circumstances.

"Dr. McGovern: In Washington there is the Group Health Association and behind it, possibly, socialized medicine. Those two situations confront the physicians in Washington, who are determined to do something about the matter. How are they going to go about it? The advice and cooperation of the American Medical Association is solicited.

"Dr. West: The society has had the help of the American Medical Association and will continue to have it.

"Dr. McGovern: The question in the minds of some is as to whether it should be fought legally.

"Dr. West: It is my purely personal opinion that somebody has to fight it legally. If the American Medical Association does it, it may arouse forces that will make it more difficult.

"Dr. Hooe: Why not the Medical Society of the District of Columbia by the same token?

"Dr. Woodward: I suggest that you have competent legal counsel advise you. The primary move is clearly to see whether your district attorney or your corporation counsel or the commissioners or the board of licensure or the insurance commissioners will act. Whether or not they will act cannot be determined until the facts are formally laid before them.

"Dr. McGovern read from the Washington Evening Star an article concerning this matter. During the discussion that followed it was pointed out that Corporation Counsel Seal emphasizes the fact that he will not be concerned whether a corporation instead of an individual is engaged in medical practice. The article in the Washington Evening Star states that Mr. Seal will begin the study of the Group Health Association, Inc., to determine whether it is operating an insurance plan and whether it should be licensed by the District Insurance Department. The suggestion was offered that it may be the duty of the United States District Attorney or some other body to act. There followed discussion concerning the powers of the Medical Society of the District of Columbia and its right to institute proceedings. Dr. Woodward offered to furnish citations regarding corporations engaging in medical practice.

"Dr. McGovern: There is a great sentiment in the Medical Society of the District of Columbia to formulate some plan.

"Dr. West: I don't know whether or not you remember that I suggested, when in Washington some time ago, that you give that idea some consideration, but after thinking about it later, I decided that probably I shouldn't have offered that suggestion because you already formulated a plan and I am not convinced that that plan did not have something to do with the stimulation of this H. O. L. C. movement. A plan almost inevitably tends to create a sentiment for the formation of other similar plans.

"Dr. McGovern: There is a very definite sentiment to initiate some kind of plan. There are three or four different ones in the making now, and it is necessary to ask you gentlemen how far we may go along.

"Dr. West: If you go into the corporate practice of medicine, you are on the same ground as the H. O. L. C. scheme.

"In reply to Dr. McGovern's question as to whether or not the Medical and Dental Service Bureau is practicing corporate medicine, Dr. West stated that that scheme is supposed to help people meet bills. It is more concerned with payment of bills than with practice of medicine.

"Dr. Hooe: Let us assume now that the plans suggested thus far are not agreeable. What can be done to meet the situation?

"Dr. West: I can only tell you again that you should go to every official agency concerned in this thing and get them to look into it with a view not only as to whether or not it is an insurance scheme subject to an insurance law but also as to whether it is not definitely a corporation practicing medicine.

"Dr. West: There are medical societies in this country that have notified the people in their communities that the members of the society will take care of them and that if they can pay, all right, but if they can't pay, they will be taken care of anyhow.

"Dr. Hooe: In the matter of the H. O. L. C., what is your future program?

"Dr. West: It is just exactly the same as it has been all the time. We shall continue fighting it every way we can. We are going to get all the help we can get. We are at least going to keep on until we are instructed otherwise.

"Dr. Hooe: Executive Committee recommended that a letter be addressed to the medical boards of the various affiliated hospitals in Washington, calling attention to the H. O. L. C. health group, insisting that the hospitals take cognizance of it, and, among other things, calling attention to the fact that the physicians employed by such groups are not acceptable to the Medical Society of the District of Columbia.

"In reply to Dr. McGovern's question as to how far the Medical Society of the District of Columbia might go in controlling the hospitals, Dr. West expressed some doubt that the society can effect such control.

"Dr. Hooe: Is it not, in your opinion, most reasonable that the hospitals should acquiesce in this matter?

"Dr. West: It is reasonable that they should do it but as to whether or not they will, that's another question. Suppose they don't?

"Dr. Woodward: You would be absolutely certain to elicit at least an attempt at legislation in Congress that would prevent your doing what you propose.

"Dr. Hooe: At a meeting of a group of the Medical Society of the District of Columbia last Sunday night it was brought out that all the civilian hospitals in Washington except, probably, one had fallen right into line, which was very gratifying.

"Dr. McGovern: Is there any objection if the Medical Society of the District of Columbia goes ahead and carries on a campaign throughout the states?

"Dr. West: In thirteen days there will be a conference of secretaries and editors of constituent state medical associations at which many other officers of constituent state and of some component county societies will be present. The whole story of the H. O. L. C. movement will be brought before the Conference and the point of view of the members of the Conference can be obtained and presented better than by spending money in written material. The members of the Conference will be given the entire picture, and Dr. Conklin and Dr. Yater, members of Conference, will be given full opportunity to say anything they want to say.

"Dr. Hooe: What do you anticipate the reaction of the members of the Conference will be?

"Dr. West: Opposed to the H. O. L. C. scheme. They will be asked definitely to carry on.

"Dr. Hooe: What do you think their carrying on will consist of?

"Dr. West: I am going to ask that they get into contact with their congressmen to make them understand what is involved. Some of them are already doing that.

"Dr. Hooe: You are going to try to get the Board of Trustees to agree that some definite campaign must be waged through Congress?

"Dr. West: A campaign does not get you any place. It simply redoubles the effort of every agency opposed to you. I think that the Medical Society of the District of Columbia may not have put its position in the papers in Washington as clearly as it should have done. It should be very clearly stated in words everybody can understand that the interest of medicine in this thing is actually the interest of the public. The promotion of the H. O. L. C. scheme will actually tend to destroy the private practice of medicine and the people will pay the penalty.

"Dr. Hooe: Can we say we have the backing of the American Medical Association in that?

"Dr. West: You can say so very definitely, as that is absolutely in keeping with the policies of the organized medical profession in this country.

"It was again urged that this matter be presented to the proper officials in Washington so that they take up the question of a corporation practicing medicine. Mention was again made of the desirability of contacting the proper government officials through physicians, who should, of course, know the facts and the argument to apply."

Mr. Kelleher:—I shall now read from Exhibit 136, which is a portion of the proceedings of the board of trustees of the American Medical Association for November 18 and 19.

Mr. Kelleher:

"Group Health Association, Inc.: As has been previously explained, the Federal Home Owners' Loan Corporation has granted \$20,000 a year for two years to the Group Health Association, Inc., to aid it in getting started and to help provide the expensive modern equipment which will be used in the clinic. Thus, the federal government has provided funds to finance a corporation that is to engage in the practice of medicine, in spite of the fact that corporation practice has been declared to be illegal in numerous court decisions, including decisions handed down by federal courts.

"Doctor West reported that a committee of the Medical Society of the District of Columbia had visited the headquarters office early in the month for the purpose of conferring with him, Doctor Woodward and Doctor Leland with respect to the Group Health Association, Inc.; that the committee brought what apparently amounted to a demand to the Association to devise further means and ways of opposing the continued operation of the Group Health Association, Inc., and that it was intimated that the American Medical Association had not concerned itself with anything but scientific matters, in spite of the fact that he and Doctor Woodward had conferred with the District Society in Washington on instruction from the Board; that a write-up had appeared in THE JOURNAL concerning the matter; that diligent efforts had been made to develop information concerning the Group Health Association, Inc., and to procure a copy of its contract, and in spite of the fact that the headquarters office, on instruction of the Board of Trustees, had done everything it could to combat the movement on the basis of the fact that it is contrary to the policies of the House of Delegates.

"In this connection, Doctor West presented a newspaper account of a meeting held at the Mayflower Hotel on October 30, to usher in the Group Health Association, Inc., which, it was stated, would open its clinic on the following day for members of the Federal Home Loan Bank Board and Affiliated Agencies. The newspaper contained a statement given out by Dr. Richard C. Cabot, lauding group medical practice and criticising the medical profession. This matter, he stated, was referred to the Judicial Council, which had requested him to contact Doctor Cabot to ascertain whether or not he was incorrectly quoted in the newspaper item. A letter has been written to Doctor Cabot but thus far no reply has been received.

"Dr. Cullen moved that Doctor West be requested to explain the whole matter of the activities of the Group Health Association, Inc., before the Conference of Secretaries of Constituent State Medical Associations and Editors of State Medical Journals on Friday. Doctor Hayden seconded the motion and it was carried."

Exhibit 137 is a photostatic copy of the minutes of the Judicial Council of the American Medical Association, Nov. 12, 1937.

Mr. Kelleher:—On page 3 appears the following:

"Dr. Richard C. Cabot and the Group Health Association, Inc.: Several letters of complaint against Dr. Richard C. Cabot, Boston, Mass., were presented to the Council. These complaints had to do with Doctor Cabot's address under the auspices of the Home Loan Bank Board's new Group Health Association as reported in newspapers.

"After consideration of the matter, it was moved by Doctor Burns, seconded and carried, that the Secretary of the Judicial Council be requested to bring the matter to the attention of the Massachusetts Medical Society through its secretary and to write Doctor Cabot that, before the Judicial Council considers any action in the matter, it would like to know whether or not he said the things he is reported in newspapers to have said in his address at the meeting held under the auspices of the Home Loan Bank Board."

Exhibit 119 was a letter from the defendant West to Dr. Joseph S. Wall, 1864 Wyoming Avenue, Washington, D. C., dated Nov. 9, 1937:

U. S. EXHIBIT 119

"Dear Doctor Wall:

"I am sorry that I have not had opportunity until now to reply to one particular paragraph in your letter addressed to Doctor Woodward under date of November 1.

"We have received several letters protesting against the utterances of Dr. Richard C. Cabot at the time of his participation in the meeting held at the Mayflower Hotel under the auspices of the Home Loan Bank Board and the Group Health Association, Inc. It is my purpose to submit all of these communications to the Judicial Council of the American Medical Association at its meeting to be held within a few days.

"The diatribe delivered by Dr. Richard C. Cabot at the Mayflower Hotel was strictly in keeping with the record he has made during the last few years. Doctor Cabot does not, apparently, have as many opportunities as were formerly offered to him to deliver himself of his peculiar views. Doctor Cabot is a member and a Fellow of the American Medical Association and it is because of his Fellowship that I am in position to submit to the Judicial Council the several communications we have received. Original jurisdiction over his membership lies with the district medical society of the Massachusetts Medical Society of which he is a member.

"We had a very pleasant visit from Doctors Hooe and McGovern and went over very fully the situation that has developed in Washington. As a matter of fact, official representatives of the American Medical Association have done all that they could to oppose the movement whereby a corporation financed by an agency of the federal government has been put into the practice of medicine in Washington, and it is our purpose to continue these efforts.

"With my sincere good wishes, I am

"Very truly yours,
"Olin West."

Exhibit 156 is a letter from Joseph S. Wall to Dr. Olin West, dated Nov. 11, 1937:

ORGANIZATION SECTION

"Dear Dr. West: U. S. EXHIBIT 156

"I want to thank you very much for your letter of November 9th relating to the action of Dr. Richard C. Cabot in lending comfort to the enemy by a remarkable address he made in Washington.
"I do trust the Judicial Council will take suitable disciplinary action in the promises as it would seem richly deserved.
"The situation in Washington is now very acute and is fraught with most serious implications. Nearly all of our accredited hospitals have in force a ruling that members of the staff and courtesy staff must be in good standing as members of the American Medical Association and this rule has been repeatedly enforced since a legal ruling upholding the right of a hospital to exclude a physician was promulgated by the local Court in the case of Cox versus the Emergency Hospital.
"Forty-eight hours ago, on the eve of a Community Chest drive, the threat was held over the head of the Chest officials that the Home Owners' Loan Corporation would exercise its influence to prevent all contributions by Government employees unless the hospitals admitted their paid Hessian practitioners. I understand that at a meeting of the Hospital Superintendents with the Chest officials the sentiment seemed to be that the hospitals would admit the patients of Group Health Association but that the privilege of physicians in attendance would be governed by the Hospital rules.
"We sincerely hope that the American Medical Association will uphold our hands in an effort to check this dangerous innovation under quasi-government auspices.
"Again with thanks, believe me,

"Sincerely yours,
"Joseph S. Wall, M.D."

Exhibit 155 is a carbon copy of defendant West's reply to Dr. Joseph S. Wall, dated Nov. 16, 1937:

"Dear Doctor Wall: U. S. EXHIBIT 155

"I am very glad indeed to have your letter of November 11. I fully agree, of course, with the views expressed in your letter with respect to the situation that has developed in Washington.
"The American Medical Association has done everything that it could to oppose the institution of the plan that has been placed in operation under the auspices of a federal agency in Washington, its efforts having been initiated months ago. A report on this matter was submitted to the Board of Trustees at Atlantic City, and instructions issued by the Board be persisted in until such time as the Board of Trustees or the House of Delegates of the American Medical Association may issue new instructions.
"It seems perfectly apparent that the Group Health movement in Washington is receiving very powerful support, some of which, perhaps, has not yet come into the open.
"With my sincere good wishes, I am

"Very truly yours,
"Olin West."

Mr. Lewin:—I shall read from the minutes of the meeting of the Medical Society of the District of Columbia held Wednesday evening, Nov. 10, 1937, at 8 p. m.

"Dr. Thomas E. Neill, President, presiding." (Reading) Present: Drs. Calkins, Chipman, White, Speer, Ellison, Horgan, Williman, Dowling, Herbst, Neumann, Leffer, Minor, Mason, Brumbaugh, Trible, Murphy, Thompson, Schreiber and other members and guests to the number of about ninety.
"The minutes of the preceding meeting of the Society, held November 3, 1937, were read and approved.

"The Secretary read a communication that had been received from the National Homeopathic Hospital, as follows:
"November 9, 1937.
"Dr. C. B. Conklin, Secretary,
The Medical Society of the District of Columbia,
Washington, D. C.

"Dear Dr. Conklin:
"As the attitude of the National Homeopathic Hospital toward the Group Health Association is apparently not clear to various members of the District Medical Society, I am enclosing a copy of a letter sent today to their president, Mr. Penniman, by Dr. J. B. Gregg Custis, Executive Officer of our Board of Trustees.

"(Enclosure):
"November 9, 1937.
"Mr. William F. Penniman,
Group Health Association, Inc.,
1328 Eye Street, N. W.,
Washington, D. C.

"My dear Mr. Penniman:
"At a Board of Trustees meeting held on November 4, 1937, it was voted that until the Group Health Association, Inc., was approved by the Medical Society of the District of Columbia, the National Homeopathic Hospital could not make any contract or enter into any agreement with it.
"Very truly yours,
"J. B. Gregg Custis, M.D.,
"Executive Officer, Board of Trustees."

I shall now read from the minutes of a special meeting of the Medical Society of the District of Columbia held Thursday evening, Nov. 11, 1937, at 8 p. m.:

"Dr. Thomas E. Neill, President, presiding: (Reading) Present: Drs. Gannon, Warner, Mallory, John Reed, Sterling Ruffin, Schreiber, Cajigas, Calkins, Mundell, Cummings, Thomas A. Groover, Marlbury, Reichelderfer, Wall, Leech, Smith, Parker, Hyde, Thomas, and other members to the number of about three hundred.
"Dr. Neill announced that the meeting was called to bear a report from the committee of two which was sent to Chicago to confer with representatives of the American Medical Association regarding the problem confronting the local profession, viz., the Group Health Association, Inc. He called on Dr. R. Arthur Hooe.

"Dr. R. Arthur Hooe said he would make his remarks as brief as possible during which he would deal more or less in generalities. His remarks would be followed by a report from Dr. F. X. McGovern. Dr. Hooe stated: 'You would naturally want to know something of the trip which we made to Chicago. We arrived in Chicago on Saturday morning at 9 o'clock. About 5 minutes before 10 we arrived at the American Medical Association headquarters on North Dearborn Street, where we received a very, very cordial welcome at the hands of Dr. Olin West, W. C. Woodward and R. G. Leland. Our conference very promptly began at 10 a. m. and lasted for three hours, at the end of which the other two gentlemen seemed to be in a hurry—Dr. Woodward in some hurry to catch the afternoon train for Washington, Dr. Leland being in a hurry—Dr. West took us in ebarge to the University Club where he lunched us. We had a delightful visit with them. At the conclusion of the luncheon a taxi was furnished to take me to the Pennsylvania Station and a taxi furnished to take Dr. McGovern to the New York Central from which he left for New York.'

"Early in the conference it was quite apparent, very promptly developed, that we were dealing with a problem in common, in which the American Medical Association and we were the victims—we of the states, particularly we of Washington, and perhaps no less those of Denver, Colorado. This being true, the conference throughout was entirely advisory in character, in no way whatsoever controversial. We were early assured by these gentlemen that not only do they view but they have always viewed it as a National problem. They furthermore assured us that they heartily endorsed the attitude of the Medical Society of the District of Columbia and hoped and expected to endorse its future policies in regard to this matter, assuming, of course, that that course will be wisely and carefully mapped out. They recognized the fact that the Medical Society of the District of Columbia constituted the guinea pig inoculation in this case. We have their sympathy and we have their assurance of their cooperation whenever and wherever possible. Discussing ways and means and the best ways and means by which the problem can be approached, they themselves have recognized the seriousness of this thing. They felt long before we did and they have been very diligent in their efforts to combat it. Many things have been done by these gentlemen which have never been brought to our attention and as in all organizations—in our own many times, obviously confidential. Be assured that they have left no stone unturned nor will they in the future. They gave us very sincere advice in the matter and you will later have the pleasure of being addressed by Dr. Woodward and I hope Dr. Woodward and Dr. McGovern may cover anything I may inadvertently omit. They feel the Medical Society of the District of Columbia, if possible, at this time should not play the role of the complainant in the case, if that can be avoided. They feel, however, that unless some other profession, such as the District Bar Association—and we are advised that that is being attacked as well, or some other institution or individual, will not complain that we then, in that case, they advised that after reasonable time and with most careful legal guidance that we proceed if no one else will and show the Corporation Counsel and the District Attorney wherein this practice is illegal according to the Medical Practice Act and the Insurance Laws and if they refuse to act, complain to the Commissioners.

"They feel also, I believe, it is our conclusion—it is our feeling, that they feel from what they said to us, the many things that were read—that the best way to attack this problem is through the powers that be, that the powers higher up. They realize that we have no suffrage in Washington and they realize that it constitutes a great problem because of that fact. They feel that the Senators and Congressmen, as we do, should be approached by the voters back home. We, who have no vote, may have a little say—receive promises and little action.
"On the 18th of this month the Board of Trustees of the American Medical Association will meet in Chicago, at which time we have assurance that this issue will be the one foremost to be considered by that group. We feel also that the expression of these three gentlemen to us is but a reflection of what that committee, that Board of Trustees, will do or suggest. It is known to them that two of our members, namely Drs. C. B. Conklin and W. M. Yater will be in Chicago upon that occasion. They look forward to their coming. The floor will be free to them and it is hoped by them and by us that these gentlemen will speak as freely as we tried to do. It is also hoped that these gentlemen will be able to bring us back or we will soon obtain some report as to those deliberations and their decision.

"I have stressed or have tried to stress the fact, ladies and gentlemen, that we feel they feel that we could accomplish more if by some means we can reach through the proper channel the powers that be on Capitol Hill. There were many things said about it and it constitutes quite a problem. They are hoping that the Medical Society, as said before, will proceed after due careful deliberation, proceed wisely, in the matter, and they hope that it will be able to accomplish something along these lines.
"They have stressed the fact that whatever plan may be arrived at by you, by which to accomplish this or to make the effort, the average doctor who is asked to contact a representative or senator should be coached carefully. In order that he may have well in mind the subject matter of that interview in order that he may be prepared to debate it with that gentleman and throw light upon it, at least that gentleman has to have a way of doing some things, taking him over, it is a very very important point.

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"In conclusion, I personally hope that by some means the Medical Society of the District of Columbia will find some way by which its members may be coached and may be able to contact as many of these men in Washington as possible for the good that may come of it. But more important than that, it would seem that the State Societies should be contacted as early as possible and those men reached through the states if it is possible to do that. Finally, in that same connection, it seems to me, as we all sit here and discuss our problems, and often never seem to get anywhere, I wondered myself if that cannot best be done by the means of some committee by its subcommittees to get together and iron out the problems.

"I will now retire and hear Dr. McGovern tell more specifically of the conference, at the close of which I will close with a few words; if not, we will then have the pleasure of hearing Dr. Woodward."

"Dr. F. X. McGovern was recognized. He said that in view of the fact that there may be some members present who were not in attendance at the last business meeting, he would read, for their information, the resolutions which were adopted, authorizing the sending to Chicago of two members of the Society, and another resolution that had directly to do with the American Medical Association."

THE COURT:—You have read those?

Mr. Lewin:—Did you say something, your Honor?

THE COURT:—I said you could omit those.

Mr. Lewin:—Yes. (Reading):

"Dr. McGovern said he would read some questions and answers that were involved in the conference in Chicago, in order that the membership may be apprised of the proper reactions, thereby being able to deduce their own conclusions. (Questions and answers read by Dr. McGovern appended hereto.)"

The question and answers read by Dr. McGovern are appended thereto. And of course I will omit those. They have already been read by my colleague.

(Reading:) "Dr. Woodward"—

Mr. Leahy:—Wasn't there one you omitted there? You omitted the question and answers, but there was one you omitted: "Dr. McGovern then read a statement of his own personal conclusions."

Mr. Lewin:—I will read that. (Reading):

"Dr. McGovern then read a statement of his own personal conclusions. He emphasized the fact that the American Medical Association is very definitely and strongly of the opinion that the Group Health Association, Inc."

Do you want a little time?

Mr. Leahy:—Just a weensy bit.

Mr. Lewin:—Do you want to go over it again?

THE COURT:—Does it say what "illegal" is?

Mr. Leahy:—Doesn't say.

THE COURT:—We will leave it to them.

Mr. Lewin:—We will get one of his legal opinions. Do you want Dr. Arthur Hooe's remarks again?

Mr. Leahy:—No. Go ahead.

Mr. Lewin. (Reading):

"Dr. W. C. Woodward, in addressing the Society, said he felt very much at home in this Society, although he noted a lot of new faces. He said that Drs. Hooe and McGovern had stated the situation very clearly in so far as it relates to the American Medical Association. He stated that the problem is not a local problem. According to the articles of incorporation of the Group Health Association membership in the organization is not limited to members of the Home Owners' Loan Corporation and its affiliates, and is not limited to employees of the Federal Government in the District of Columbia. Every employee of the Federal Government, anywhere, except commissioned officers of the Army and Navy, and enlisted men in the Army and Navy are eligible for the benefits of the organization, such as they are. The fact that at the present time the activities of the organization are limited to the District of Columbia is the result, he thought, of the failure of the organization to enroll enough men outside, or to procure enough money to carry on outside of the Home Owners' Loan Corporation in order to put the program over. He stated that we all recognize it as a national organization and that at the present time it is centered in the District of Columbia. He felt there was one thing that the members of the Medical Society ought to bear in mind and that is that the organization that they have to fight is not the Home Owners' Loan Corporation—it is Group Health Association, Inc., which is merely a private corporation. If the five men who have organized Group Health Association have the right to organize and hire doctors and to sell the services of those doctors, whether for profit or not, any five men or women in the District of Columbia can do the same thing, retaining all the time control over the activities of the employees. He hoped the members realized that that is an intolerable situation. The courts have so regarded it—it has been held that a corporation cannot practice medicine even though every employee of the corporation is a licensed practitioner.

"Dr. Woodward said the question has arisen with respect to practice of corporations. He cited one case in which an individual undertook to hire a doctor, the individual pocketing the profits. The court in that particular case ruled that unless the individual financial backer was a licensed practitioner he could not practice medicine in that way. The number of decisions to the contrary have been negligible. He recalled two decisions by the Supreme Court of one state in that amounted to the same case to the contrary—Nebraska. Decisions everywhere else have held that a corporation cannot practice medicine as the Group Health Association is practicing medicine. If they do it is a criminal offense. Anybody can prefer charges if they are willing to swear out a warrant.

Any organization, such as the Society, hires its own prosecutor. It pays the man to proceed for them. It swears him in. Today, Dr. Woodward added, the Society has as its servants the United States District Attorney for the District of Columbia and the Corporation Counsel for the District of Columbia. If the Society lays before them the evidence that these persons are violating the law they have no lawful option but to prosecute. That, of course, relates to the practice of medicine. As he recalled the Healing Arts Practice Act he believed it was the duty of the Superintendent of Police to get evidence with view to prosecution.

"Dr. Woodward said there was another approach to this question—that the organization is conducting an insurance business unlawfully, and in that case it is the business of the insurance commissioners to gather the information and prosecute. In both cases, both as to the unlawful practice of medicine by a corporation and with respect to the corporation engaged in insurance business, Dr. Woodward said these questions had come before the corporation counsel and he has decided in the case of insurance that such a corporation cannot engage in that business and he has come to practically the same conclusion when it comes to the practice of medicine. The United States District Attorney has ruled that a corporation cannot practice any profession that requires a license to permit one lawfully to engage in such practice. Dr. Woodward stated that those approaches are open. Other approaches that are not nearly so open are available, i. e., quo warranto proceedings, which are a bit more difficult because the authority of some officer in the District of Columbia who corresponds to the Attorney General of the state must be obtained to institute proceedings. Further, to recover from the Group Health Association money that has been granted it by the Federal Home Loan Bank Board—if that money has been unlawfully paid—a suit to recover must be at the instance of some government official.

"When it comes to the check-off system, Dr. Woodward stated, which again is contrary to public policy, while not a penal offense, any effort to continue would be something that would require action by some government officer, not by a private official. He said that it has been frankly admitted that the Federal Home Loan Bank Board has granted, or committed itself to give this organization \$20,000 a year for two years. That, he said, is 'your money and mine.' If the Board can give to a private corporation of this character he thought we could look for some authority for the gift. It is alleged that there has been undue amount of sickness among employees of the Home Owners' Loan Corporation and that this grant is to reduce the amount of sickness, but if there is any undue amount of sickness no evidence has been furnished. Certainly men in the organization, many of them, are able to pay and they should not find it necessary to grant \$20,000 a year to operate a corporation. These men, earning from \$4,000 to \$8,000 a year, are enabled to get from this organization medical services at \$2.20 for a single person, \$3.30 for a man and his family. It should be recognized that these services could not be granted without a subsidy. It is admitted that the organization has been granted \$20,000; how much more no one knows, Dr. Woodward said. He added that it had been stated to be \$100,000. No one can say that is true or not true, but he had never seen it denied.

"Dr. Woodward said further that the contract that was made between the Home Owners' Loan Corporation and the Group Health Association is a profound secret. 'One way to subsidize and operate a corporation is to hire it to render certain services. What those services are no one knows. I was told that the medical director of the Group Health Association was to be made superintendent of what he termed the Emergency Rooms of the Home Owners' Loan Corporation throughout the entire United States. There are in those offices, emergency rooms, retiring rooms that have nurses and they are to take their orders from the medical director of the private corporation. What corporation was not stated. The contract is still a profound secret and very definite and positive efforts have been made by men of influence to obtain a copy. No one has been able to see it.

"Dr. Woodward, continuing, stated that the Society has before it what is clearly a legal problem. A group of men such as the Society, not familiar with methods of law, is hardly in a position to handle the problem itself. He was of the opinion that it would wear them out. He felt that the Society must have competent counsel that will guide the matter for it; counsel in which the Society has confidence, in order that the members may go about their practice confident that their interests are being taken care of. He said Mr. Fenning could advise the Society with respect to counsel. He felt it was important that the best legal counsel he obtained. He added that the American Medical Association would cooperate in every way.

"In conclusion, Dr. Woodward said that the plan outlined of laying the evidence before the Corporation Counsel and District Attorney, showing them it is their duty to act, to counsel them to act and if they will not act, appeal to Congress, is the only course. 'My own judgment is that with the law as clear as it is you will have no difficulty in having proceedings instituted for the unlawful practice of medicine by a corporation, and engaged in the business of insurance without having properly qualified.'"

I should now like to turn to page 9. (Reading):

"Dr. J. Ogle Warfield Jr., Chairman of the Hospital Committee, was recognized. He submitted the following report, pursuant to resolution which was adopted by the Society on the evening of November 3:

"In view of the Resolution adopted by the Medical Society of the District of Columbia on the evening of Nov. 3, 1937, the Hospital Committee held a meeting, at my office, on the evening of Nov. 9, 1937, and recommends that the Medical Society of the District of Columbia send the following resolution to the Medical Boards of the various local hospitals for interpretation to the Boards of Directors of those hospitals:

"That the hospitals accept patients from Group Health Association, Inc., provided that Group Health Association, Inc., is responsible for their financial obligations;

"That these patients only be treated by the attending, associate, assistant and courtesy staff physicians of the respective local hospitals.

"J. Ogle Warfield Jr.,
Chairman, Hospital Committee."

"Motion was made and seconded that the recommendation contained in the report of the Hospital Committee be adopted.

"Dr. Worth B. Daniels, in the discussion, said he was of the opinion that members of the local medical staffs of hospitals were required to be

members of the Medical Society of the District of Columbia. He would inquire if any members of the staff of Group Health Association were now members of the Society.

"The Chair stated that two members on the staff of Group Health Association at the present time are members and they have tendered their resignation from the Society. Another member of the staff had applied for membership in the Society but withdrew his application. The two aforementioned members are still members of the Society and are on the courtesy staff of hospitals at the present time.

"Dr. Yater was of the opinion that the hospitals should be contacted and assurance should be given that no member would be allowed to practice there if he is a member of the staff of Group Health Association.

"Dr. E. J. Gunning would inquire how many members are on the courtesy staff of the various hospitals.

"Dr. Yater made a motion to the effect that the recommendation of the Hospital Committee be recommitted to the committee on the grounds that there seems to be no assurance that members of the staff of Group Health Association are not already and might not become members of the staffs of the local hospitals. Seconded and finally adopted.

"Discussion was participated in by Drs. John H. Trinder, H. S. Bern-ton, Claude Moore, Charles P. Cake, E. M. Pickford, John D. Thomas."

And I will turn to the edge of that minute, page 12:

"Dr. Thomas E. Mattingly called attention to the fact that each member of the Society had been supplied with a reprint from the October 2, 1937, issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, outlining in detail the situation concerning Group Health Association. He said he thought all the members had to do was to read this reprint to get all the information needed."

Mr. Leahy:—Now, would you read the bottom of page 11?

Mr. Lewin:—Yes. Dr. Woodward or Dr. Willson?

Mr. Leahy:—Dr. Woodward.

Mr. Lewin:—(Reading):

"Dr. W. C. Woodward was called upon. He pointed out that the Society voted to employ counsel to look after the interests of the Society. He advised strongly that no further steps be taken until the Society has the advice of that counsel. He felt sure Mr. Fenning would agree with him when he expresses the opinion that it is not desirable to try a case in the newspaper. He said the Society should be guided by the wishes of counsel even if the resolutions are delayed."

Mr. Richardson:—Yes. On the preceding page will you read the part about Dr. Willson?

Mr. Lewin:—All right (reading):

(Reading):

"Dr. Prentiss Willson was recognized. He pointed out that the Community Chest is now campaigning for funds for the various hospitals, and institutions for the year 1938. He thought the occasion was right for a formal and very carefully thought out statement to be published in the press. He called attention to the fact that there is undoubtedly a concerted movement in the Agriculture Department and by other employees of the government interested in this insurance plan to hold a club over the Community Chest in its present drive, to the extent that they will not contribute to the Chest unless the hospitals agree to admit patients from the Group Health Association for treatment. In some ways that would seem to be a very serious situation. He thought that possibly a committee could be appointed to draft a statement for publication. He did not think it was necessary to insert it in the press as a paid advertisement; if it was he thought it would be well worth the money involved.

"The Chair said he had been contacted by several members in the different departments of the government, also."

Anything further?

Mr. Richardson:—Follow that on through.

Mr. Lewin:—All right (reading):

"Dr. R. Arthur Hooe would call attention to remarks made earlier in the evening—that if possible the Medical Society should not appear as complainant. He wondered if it might not be unwise for the Society as such to proceed in this manner.

"Dr. Willson was asked to put his remarks in the form of a motion so that the Society could act upon them.

"Dr. Willson said he jotted down some notes in the last few minutes; after observing from the remarks of the delegates, that it was strongly suggested that this Society should make a statement. He felt the attitude of the Society had not been carefully put before the public. He made the following motion:

"That a committee be appointed to draft a statement for publication by the Medical Society covering the following points:

1. That the Society is not opposed to any proper method for increasing the amount, bettering the quality and lessening the cost of medical and hospital care for persons in the lower-income groups.

2. It is opposed, however, to schemes of doubtful legality that, while making no provision for adequate care for the indigent, are able to offer their benefits to those amply able to pay proper fees for the same only because the less privileged are made to carry their share of the cost through the discredited tontine system of insurance.

3. It is also unequivocally opposed to any scheme denying the patient the right to the services of the physician of his choice.

4. With respect to the reported activity of some who are interested in a local scheme of medical and hospital insurance in attempting to coerce the Community Chest by threatening to withhold contributions to it unless the hospital beneficiaries of the Chest open their doors to the patients of physicians employed by it, who attempt to practice with the dubious ethical and legal status, the Medical Society points out that

the sum contributed annually by the local profession in services to the indigent, even when valued at the most minimum fees, amounts to more than the annual monetary contribution of all other charitably disposed persons in the community, a contribution, however, to which they also give their proportionate share in cash.

5. The Society is willing that this record be contrasted by the public with that of Group Health Association, Inc., in attempting to jeopardize the Community Chest Drive to attain its own objectives.

6. It asks that the public withhold judgment until such time as its present investigations, undertaken before Group Health Association, Inc., was even contemplated, may reach a point where it feels justified in offering its own solution of these problems, of which it is acutely aware, for the consideration of the public.

"Dr. Willson made a motion that the foregoing motion be referred to the Committee on Public Information for consideration in relation with the Public Relations Counsel. Seconded."

Is it passed? No. (Reading):

"Dr. Willson withdraw his motion and resolutions."

Mr. Kelleher:—I now read from the minutes of the meeting of the Medical Society of the District of Columbia held Wednesday, Nov. 17, 1937, 8 p. m. (reading):

"Dr. Thomas E. Neill, President, presiding.

"Present: Drs. A. L. Stavely, John B. Nichols, Frank Leech, Lyle M. Mason, John Minor, R. Lomax Wells, Thomas E. Mattingly, A. P. Tibbets, H. R. Schreiber, A. B. Bennett, Thomas A. Groover, James T. Wolfe, William C. Gwynn, James G. Cumming, Charles S. White, Tomas Cajigas, C. N. Chipman, F. X. McGovern, Joseph Horgan, Virgil B. Jackson, W. M. Sprigg, and other members to the number of about one hundred and fifty."

In order not to slight Mr. Leahy I will read this:

"The Chair announced that he appointed the following attorneys to consult with the Society's Attorney, in accordance with resolution adopted at the meeting of the Society on November 11, pertaining to Group Health Association, Inc.:

"George P. Hoover
William E. Leahy."

I have nothing further to read from that, Mr. Leahy.

Mr. Leahy:—Is that all you wanted to read?

Mr. Kelleher:—I want you to get full credit. You will get more, too.

Mr. Lewin:—I will go ahead with December 1.

Mr. Kelleher:—Will you consider whether you are going to object to that, Mr. Leahy?

Mr. Leahy:—Are you going to read the whole thing?

Mr. Kelleher:—Not now, no.

Mr. Leahy:—When?

Mr. Kelleher:—Well, from time to time. Your Honor, we would now like a ruling on the transcript of the Lee and Scandifio hearing, the four volumes which were offered. We want to read a portion from the minutes at this time.

Mr. Richardson:—I think The Court ought to take a look at this alleged transcript. It is a very large transcript.

THE COURT:—I have already had a look at it at a distance. That is enough.

I will let the jury go until tomorrow morning at 10 o'clock. You will be excused.

(At this point there was long argument of attorneys before The Court on the question of admitting in evidence four volumes of proceedings in the hearings on the cases of Drs. Lee and Scandifio before the District of Columbia Medical Society.)

(Thereupon, at 4:20 o'clock p. m. an adjournment was taken until tomorrow, Friday, Feb. 21, 1941, at 10 o'clock a. m.)

FEBRUARY 21, MORNING

PROCEEDINGS

U. S. EXHIBIT 65

C. B. Conklin, Washington, D. C., Oct. 29, 1937:

"Dear Doctor:

"I hereby tender my resignation as a member of the Medical Society of the District of Columbia.

"This is to take place immediately.

"Very truly yours,
"M. Scandifio."

Exhibit 41, original letter from Allan E. Lee to Dr. C. B. Conklin, Secretary, D. C. Medical Society, dated Oct. 30, 1937:

U. S. EXHIBIT 41

"Dear Doctor Conklin:

"I hereby submit and tender my resignation as a member of the medical society, to take effect at once.

"Respectfully,
"Allen E. Lee."

Exhibit 39, letter from the defendant Hooe to Dr. Allan E. Lee, dated Nov. 2, 1937:

U. S. EXHIBIT 39

"Dear Doctor Lee:

"You are hereby directed to appear before the Compensation, Contract and Industrial Medicine Committee, which will be in session on Thursday evening, Nov. 4, 1937, at 8 p. m., in the Medical Society Building, 1718 M Street N.W.

"Very truly yours,
"R. Arthur Hooe."

Exhibit 62, an identical letter from the defendant Hooe to Dr. Mario Scandiffo. On November 4, Dr. Lee replied to Dr. Hooe's letter, stating that he had already resigned from the society.

Exhibit 43 is an original letter from Allan E. Lee to Dr. Thomas E. Neill, President, District Medical Society, Washington, D. C., dated Nov. 11, 1937:

U. S. EXHIBIT 43

"My Dear Doctor Neill:

"On Oct. 30, 1937, I tendered my resignation as a member of the District Medical Society. I did so with considerable reluctance and only because of my desire to maintain my professional dignity since I had received, from unofficial sources, information which led me to believe that unfavorable action would be taken against me by the Society because of my affiliation with the Group Health Association, Inc.

"My acceptance of the opportunity to identify myself with this organization was made only after the most careful consideration on my part.

"I have been reliably informed that no action has been taken on my resignation. Relying upon the broadminded and well considered judgment of the officers and members of the District Medical Society, I now wish to withdraw my resignation and trust that my membership in the Society will be continued.

"With very sincere regards, I am

"Yours very truly,
"Allan E. Lee, M.D."

Exhibit 64 is a letter from M. Scandiffo to Dr. Thomas E. Neill, dated Nov. 11, 1937, identical with the letter just read. In this letter Dr. Scandiffo withdraws his resignation from the society.

Exhibit 42 is an original letter from the defendant Neill to Dr. Allan E. Lee, dated Nov. 18, 1937:

U. S. EXHIBIT 42

"Dear Doctor Lee:

"I acknowledge your letter of November 11th, in which you state you desire to withdraw your resignation, tendered by you on Oct. 30, 1937, as a member of the District of Columbia Medical Society.

"Inasmuch as your resignation has not been acted upon by the Society, I am returning it to you. In doing so I wish you to understand that my action in returning the resignation to you, unacted upon, is in nowise to be considered as passing upon the motives which actuated you in tendering your resignation, as stated by you, or its withdrawal or your continuance as a member of the Society.

"Very truly yours,
"Thomas E. Neill."

Mr. Kelleher:—Exhibit 63, a letter identical with the one just read. It is from Thomas E. Neill to Dr. Mario Scandiffo, dated Nov. 18, 1937.

Exhibit 44, a letter from the defendant Hooe to the Executive Committee of the Medical Society of the District of Columbia, dated Nov. 22, 1937. In Exhibit 44 the defendant Hooe quotes the following letter, which was addressed under date of November 10 to Drs. Lee and Scandiffo, and the letter reads as follows:

U. S. EXHIBIT 44

"Under date of Nov. 2, 1937, and by registered mail, you were directed to appear before the Compensation, Contract and Industrial Medicine Committee of the Medical Society of the District of Columbia, Medical Society Building, 1718 M. Street N.W. at 8 p. m., Nov. 4, 1937. You failed to appear. The committee now, therefore, charges you of having violated Chapter IX, Article III, Sections 1 and 2 of the Constitution of the Society, reading as follows:

"1. 'It is unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate service to his patient or which interfere with reasonable competition among the physicians of a community. To do this is detrimental to the public and to the individual physician, and lowers the dignity of the profession.'"

"No member of the Society shall enter into a written, verbal, or implied contract or agreement of employment with any person, firm, corporation, association, club, lodge, or other similar organization, including the Federal and/or District Government, the terms of which contract or agreement are in violation of the principles herein expressed. The customary professional relationship of a physician to his patients, upon the basis of individual fees for services rendered, shall not be regarded as a contract within the meaning of this section."

"2. Every member of the Society before entering into a contract or agreement to render professional services shall submit a copy of his contract, if written, or a true declaration of the terms of the agreement, in writing, to the Committee on Compensation, Contract and Industrial

Medicine for approval. In the event that the committee disapproves the contract, a member may appeal to the Executive Committee."

"And again, Chapter IX, Article IV, Section 5, of the Constitution of the Society, reading as follows:

"No member of the Society shall engage in any professional capacity whatsoever with any organization, group or individual, by whatever name called or however organized, engaged in the practice of medicine within the District of Columbia or within 10 miles thereof, which has not been approved by the Society."

"Should you desire to defend in this matter and will so advise within ten days, a hearing by the Committee will be arranged.

"Very truly yours,
"R. Arthur Hooe, M.D.
"Chairman, C. C. & I. M. Committee."

Exhibit 56 is Dr. Allan E. Lee's reply to Dr. R. Arthur Hooe, dated Nov. 19, 1937:

U. S. EXHIBIT 56

"Dear Doctor Hooe:

"In response to your letter of the 10th instant, wherein I have been charged by your Committee with having violated the provisions of Sections 1 and 2 of Article III of Chapter IX and Section 5 of Article IV of Chapter IX of the Constitution of the Society, you are advised as follows:

"1. Your letter or notice of Nov. 4, 1937, was disregarded because of the fact that, prior to that date, I had sent to the Society my resignation from membership; consequently I considered further response unnecessary.

"2. Since that time, however, I have withdrawn my said resignation, and, considering myself in good standing in the Society, I have intended and do intend to comply fully with the rules of the body. No formal contract has been entered into with the Group Health Association, but when the terms of the contract are finally agreed upon and reduced to writing, I fully intend to submit same for approval under the rules of Medical Society.

"While it is not my thought that I have, either in letter or spirit, violated any of the rules of the Society, and believing that charges thereof are premature, I hereby request a full and complete hearing, in accordance with your letter of November 10, on the charges made, to the end that I may have ample opportunity, in person and by counsel, to defend against all charges so made. It is my request that said hearing be fixed at a date not earlier than fifteen (15) days hence in order that ample opportunity may be had for a full and complete presentation of the matter.

"Respectfully,
"Allan E. Lee, M.D."

Exhibit 55 is the defendant Hooe's reply to the letter of Dr. Allan E. Lee just read. It is dated Nov. 22, 1937:

U. S. EXHIBIT 55

"Dear Dr. Lee:

"In acknowledgment of your letter of Nov. 19, 1937, may I say that a report, in the entire matter, is being forwarded to the Executive Committee. Further reply to your communication will doubtless follow within a few days from the chairman of that body.

"Very truly yours,
"R. Arthur Hooe, M.D.
"Chairman, C. C. & I. M. Committee."

Exhibit 68 is identical with Exhibit 55 except that it is Hooe's reply to Mario Scandiffo, same date as Exhibit 55.

Exhibit 44, a letter from R. Arthur Hooe to the Executive Committee of the Medical Society of the District of Columbia, Washington, D. C., Nov. 22, 1937. In that letter he reviews the correspondence which has ensued between him and Drs. Scandiffo and Lee, and then concludes with this paragraph:

U. S. EXHIBIT 44

"After careful consideration the committee is unanimously of the opinion that these members are guilty of violation of Section 1, Article III, Chapter IX, and Section 5, Article IV, Chapter IX, of the Constitution of the Medical Society of the District of Columbia, and recommends that they be expelled.

"Very truly yours,
"R. Arthur Hooe, M.D.
"Chairman, C. C. & I. M. Committee."

Exhibit 57, a carbon copy of an original letter from William Mercer Sprigg to Dr. Allan E. Lee, dated Nov. 24, 1937:

U. S. EXHIBIT 57

"Dear Doctor Lee:

"In reply to your letter of Nov. 19, 1937, requesting a time for hearing 'not earlier than fifteen days after the above date,' I am informing you that Dec. 6, 1937, at 8 p. m., is the date and hour fixed when we will expect you to appear before the Executive Committee of the Medical Society of the District of Columbia for hearing, at the Medical Society Building, 1718 M Street N.W. You, of course, know that you are entitled to be represented by counsel.

"Very truly yours,
Signed by the defendant Sprigg.

Exhibit 69 identical with the exhibit just read, except that it is addressed to Dr. Mario Scandiffo. It is dated Nov. 24, 1937, and is signed by the defendant Sprigg.

DR. HIGGINS

R. E. B. Medical College

32649

ORGANIZATION SECTION

Exhibit 58 is an original letter from Allan E. Lee, M.D., to R. Arthur Hooe, M.D., Dec. 3, 1937:

"Dear Dr. Hooe:

U. S. EXHIBIT 58

"Enclosed herewith is . . . a written agreement to be executed hereafter by and between myself and Group Health Association, Incorporated, of Washington, D. C. The original contract has not been executed by the parties thereto.

"I am forwarding a copy of said proposed contract in accordance with the constitution and by-laws of the Medical Society of the District of Columbia, to you as Chairman of the Committee on Compensation, Contract and Industrial Medicine for the consideration and approval of said proposed contract by said Committee. Please submit the proposed contract to said Committee and notify me when the approval of said Committee thereto is had and obtained.

"I am informed by the Group Health Association that it will be only too glad to submit to your Committee any information which your Committee might feel necessary in consideration of said contract, explaining the purpose, objects and accomplishments of said Association.

"Very truly yours,
Allan E. Lee."

The copy of Dr. Allan E. Lee's contract is not attached to the letter of December 3, but Exhibit 70 is identical with Exhibit 58, except that it is a letter from Scandiffo to the defendant Hooe, dated Dec. 3, 1937, and attached to that letter is the form of contract between Dr. Scandiffo and Group Health Association, which is submitted for the approval of the society.

Mr. Lewin:—I should like to read from the minutes of the business meeting of the Medical Society of the District of Columbia held Dec. 1, 1937, at 8 p. m.:

"Dr. Daniel B. Moffett, First Vice President, presiding."

"Present: Drs. Gwynn—that's Henry Gwynn, William Gwynn, Rensch, Trinder, Jacobs, Nichols, Cumming, Seckinger, Mason, Stavelly, Kirtledge, Geier, Gilbert, McGovern, Wells, and other members to the number of about seventy-five.

"The minutes of meetings held November 17 and 24 were read and approved.

"Dr. J. Ogle Warfield Jr., Chairman of the Hospital Committee, stated that his committee studied the local question with advice of legal counsel, but as yet was not ready to make a final report. He submitted the following resolution as a recommendation from his committee:

"Resolved, That as a matter of educational policy the Medical Society of the District of Columbia strongly recommends that all hospitals engaged in the teaching and training of residents, interns, and nurses, where possible, follow the recommendation of the American Medical Association regarding the constitution of their entire Medical Staffs, namely, that each appointee be a member of the Medical Society of the District of Columbia or a local Medical Society in this immediate neighborhood and a member of the American Medical Association.

"Dr. Warfield made a motion that the resolution be adopted and that a copy be sent to each of the local hospitals. Seconded and adopted.

"The Secretary would inquire whether the Hospital Committee was ready to report on hospitals approved, in accordance with the Constitution of the Society.

"Dr. Warfield said that the Hospital Committee realized they should report and revise the hospital list, but that all the members of the committee as well as Mr. Feunung, the Society's Legal Counsel, felt it was wise to postpone that report."

The minutes are signed by the defendant, C. B. Conklin.

Minutes of the adjourned special meeting of the Executive Committee of the Medical Society of the District of Columbia, held Dec. 10, 1937, at 8 p. m.:

"Dr. Sprigg, Chairman, presiding.

Present: Drs. Borden, Breeding, Chipman, Fowler, Holden, Hooe, Macatee, McGovern, John Reed, Hiram Reede, Ruffin, Schreiber, Wells, and Conklin. (By invitation: Dr. Margaret M. Nicholson.)

"Announcement was made by Dr. R. Arthur Hooe, Chairman of the Compensation, Contract and Industrial Medicine Committee, that Dr. Allan E. Lee submitted his resignation on December 10, to take effect immediately, as a member of the staff of Group Health Association, Incorporated. This letter was read. Acting upon the submission of this letter the Compensation, Contract and Industrial Medicine Committee drew up the following for presentation to the Executive Committee:

"December 10, 1937.

"The Executive Committee.

"On Nov. 22, 1937, our committee addressed a communication to you advising you of our investigation concerning Drs. Allan E. Lee and M. Scandiffo, and recommended that they be expelled as members of the Society because of their violation of Section 1, Article III, Chapter 9, and Section 5, Article IV, Chapter 9, of the Constitution of the Medical Society of the District of Columbia.

"Our committee is today in receipt of a letter from Dr. Allan E. Lee, advising us that he has resigned from the staff of Group Health Association. Inasmuch as our recommendation respecting Dr. Lee was based upon the fact that he had entered into a contract with Group Health Association and that contract has now been terminated by him, we feel that no further action should be taken with respect to Dr. Lee.

"We therefore, respectfully request that the charges and recommendations against Dr. Lee, embodied in our communication of Nov. 22, 1937, be withdrawn and that appropriate action be taken by your committee thereon.

"R. Arthur Hooe,
Chairman."

JOUR. A. M. A.
MARCH 8, 1941

"When it was ascertained definitely that Dr. Allan E. Lee was in fact no longer a member of the Group Health Association Staff, Dr. F. X. McGovern, for the Executive Committee, moved that all charges that had been filed by the Compensation, Contract and Industrial Medicine Committee, be dropped forthwith. This was duly seconded and adopted.

"Mr. George P. Hoover, Attorney, interposed that Dr. Hooe's committee address a letter to Dr. Lee, stating in effect that his resignation would end the prosecution in so far as his committee is concerned.

"Dr. W. M. Sprigg stated that inasmuch as Dr. E. Hiram Reede had already presided at the previous meeting, he was of the opinion that Dr. Reede should continue. This arrangement was agreed to.

"Dr. E. Hiram Reede, Vice Chairman, now presiding.

"At this point Dr. Mario Scandiffo and the attorneys for the Group Health Association, Inc., and Dr. W. F. Penniman, filed into the room. The stenographer retained by Mr. Hoover and the attorneys for the Society then proceeded to take down verbatim the proceedings."

Signed "C. B. Conklin, Secretary."

Exhibit 59 original letter from Allan Lee to Dr. R. Arthur Hooe, Chairman, Committee of C. C. & I. M., District Medical Society, 1718 M Street N. W., Washington, D. C., dated Dec. 10, 1937:

"Dear Doctor Hooe:

U. S. EXHIBIT 59

"Enclosed please find a copy of a letter of resignation from the staff of Group Health Clinic, as you requested. You will please inform the members of the committee of my course of action as you have outlined.

"Sincerely,

"Allan Lee, M.D."

Attached to this is a letter dated Dec. 10, 1937, Allan E. Lee to Dr. E. Brown, Medical Director, Group Health Association, Inc., Washington, D. C.

U. S. EXHIBIT 60

"My dear Doctor Brown:

"Upon reconsideration of all facts involved, I am forced to resign as a member of your staff of the clinic.

"Sincerely,

"Allan E. Lee, M.D."

Exhibit 47 original letter from the defendant Hooe to the Executive Committee, dated December 10, notifying the Executive Committee that Dr. Lee had resigned from the staff of Group Health Association, and requesting the Executive Committee to withdraw the charges against Dr. Lee.

Exhibit 61 is a letter from the defendant Hooe to Dr. Allan E. Lee, dated Dec. 21, 1937:

"Dear Doctor Lee:

U. S. EXHIBIT 61

"In acknowledgment of your letter of December 10, in which you enclose a copy of your resignation as a member of the medical staff of Group Health Association, Inc., may I say that upon receipt of same the Compensation, Contract and Industrial Medicine Committee appeared before the Executive Committee and requested a withdrawal of its charges against you, which request was granted. Such action places your status as that of a member now in good standing.

"Very truly yours,"

the defendant Hooe.

Exhibit 120, a carbon copy of a letter from the defendant Olin West, Secretary and General Manager of the A. M. A., Cal Faculty of the State of Maryland, Baltimore. It is dated Nov. 16, 1937:

"Dear Doctor Wise:

U. S. EXHIBIT 120

"While I am delighted to have your letter of November 12, I am sorry indeed that you will not be with us at the Annual Conference of Secretaries of Constituent State Medical Associations. I think that some of the matters that will be discussed at the Conference are of tremendous importance and, in some particulars, are probably more important than any other matters that have ever been considered at similar meetings.

"We have done all that we could to oppose the Group Health Association, Inc., in Washington, but in spite of our best efforts the scheme has gone into operation. We have worked as closely as possible with the Medical Society of the District of Columbia. As a matter of fact, our efforts began before the Medical Society of the District of Columbia became very active. It is my purely personal opinion that it is an outrage that an agency of the Federal Government should finance a corporation that is to engage in the practice of medicine in the face of the fact that the laws of most of the states specifically declare corporate practice of medicine to be illegal.

"I respectfully suggest that the Medical and Chirurgical Faculty of the State of Maryland make proper representations to the members of Congress from Maryland with respect to this matter.

"With my sincere good wishes, I am

"Very truly yours,
Olin West."

A letter from R. B. Poling, Secretary of the Mahoning County Medical Society of Ohio. It is Exhibit 158, a letter from Dr. Poling to Dr. Olin West, Secretary of the A. M. A., dated Nov. 24, 1937:

U. S. EXHIBIT 158

"My dear Dr. West:

"The Mahoning County Medical Society received a communication relative to the Clinic in Washington, D. C. financed and equipped by money from the United States Government (H. O. L. C.).

"Action was taken by the Council of this society at its meeting of Nov. 22, 1937. This problem was turned over to the chairman of the Legislative Committee and Allied Professions for action. They are authorized to send resolutions to various influential men relative to this situation, asking for their cooperation. Council sent a letter of confidence to Dr. Thomas E. Neill, President of the District Medical Society.

"Therefore, the Council of the Mahoning County Medical Society is hereby informing you of its action on this timely matter.

"With kind regards, I remain

"Yours fraternally,
"R. B. Poling,
Secretary."

Exhibit 157, letter from the defendant Olin West to Dr. Poling, dated Dec. 1, 1937:

U. S. EXHIBIT 157

"Dear Doctor Poling:

"I am greatly obliged to you for your letter of November 24 informing me of the action taken by the Mahoning County Medical Society with respect to the Group Health Association, Inc., which has recently entered into the practice of medicine in the District of Columbia.

"The American Medical Association has done all that it could to oppose this movement. The Group Health Association has received a charter and is actually an incorporated body. The Home Loan Bank Board, a federal agency, has agreed to provide the sum of \$20,000 a year for two years for the purpose of financing the Group Health Association, Inc., in the face of the fact that the laws of practically all of the states of the Union specifically declare the practice of medicine by a corporation to be illegal. Membership in the Group Health Association, Inc., is open to all government employees other than those of the Army and Navy, although it is claimed in Washington that the membership is now limited to employees of the Home Owners' Loan Corporation and its affiliated agents.

"I am very sure that the Medical Society of the District of Columbia will appreciate the support of the Mahoning County Medical Society in its efforts to combat the corporation practice of medicine, which in the District of Columbia threatens to have a far reaching and deleterious effect on the private practice of medicine.

"With most cordial good wishes, I am

"Very truly yours,
"Olin West."

Exhibit 159, another letter from the defendant Olin West to Dr. Poling, Youngstown, Ohio, dated Dec. 4, 1937:

U. S. EXHIBIT 159

"Dear Dr. Poling:

"Your letter of November 30 has just come to hand. The American Medical Association has done everything that it could do to oppose the organization and operation of the Group Health Association, Inc., in the District of Columbia. I think I am safe in saying that the American Medical Association became active in this matter before the Medical Society of the District of Columbia began its efforts in opposition.

"The Group Health Association, Inc., secured a charter in the District of Columbia. The Home Loan Bank Board, which I understand is an affiliate of the Home Owners' Loan Corporation, has, according to our information, agreed to finance the Group Health Association, Inc., to the extent of \$100,000 if that sum is thought to be necessary, and has taken action whereby \$20,000 a year for two years has been set aside for the use of the Group Health Association, Inc. We have done all that we could to oppose this movement on the ground that the corporate practice of medicine is illegal and altogether undesirable, as well as because of a realization of the fact that if all government employees in the District of Columbia who are eligible for membership in the Group Health Association become members, the private practice of medicine in the city of Washington will be largely destroyed. In spite of the fact that representatives of the American Medical Association have sought and have secured the assistance of persons in high official position in Washington, we have never until this good day been able to secure copies of the contract offered by the Group Health Association, Inc., to those who become members.

"Senator McCarran has demanded an investigation of this whole movement and has raised the question on the floor of the Senate concerning the right of an agency of the federal government to appropriate money for such purposes as those for which the Home Loan Bank Board has already made definite commitments.

"We were informed by persons connected with the Home Owners' Loan Corporation that the Group Health Association, Inc., was organized for the benefit of employees of the HOLC and its affiliated bodies, but the fact is that under the provisions of the charter and the by-laws of this organization all employees of the federal government outside of the Army and Navy are eligible to apply for membership.

"The matter is one of concern not only in the City of Washington but also in other centers in the United States where considerable numbers of government employees reside. To my mind, it is difficult to understand just how an official agency of the federal government can agree to finance an organization that is to engage in the corporate practice of medicine in the face of the fact that in practically all states practice by corporations is illegal. The Medical Society of the District of Columbia, according to my latest information, has employed counsel

and is seeking to secure rulings from legally constituted officers of the federal government and of the District of Columbia as to the legality of the incorporation and the proposed activities of the Group Health Association, Inc.

"With most cordial good wishes, I am
"Very truly yours,
"Olin West."

Exhibit 161 carbon copy of a letter from the defendant West to Dr. S. Adolphus Knopf, K-n-o-p-f, 16 West Ninety-Fifth Street, Nov. 8, 1937:

U. S. EXHIBIT 161

"Dear Dr. Knopf:

"I am greatly pleased to have your letter of November 3 to which is attached a copy of a letter addressed by you to Mr. Robert L. Hill, a charter member of the Group Health Association, Incorporated, in Washington. I am, of course, greatly pleased that you approve the official attitude of the American Medical Association toward such movements as the Group Health Association, Incorporated.

"When one considers the facts with respect to the number of government employees in Washington and in one or two other centers in the United States, one is compelled to wonder what will become of the private practice of medicine in those centers if the government is to subsidize cut-rate medical schemes under which corporations are to engage in the practice of medicine in spite of the fact that practice of medicine by corporations has been repeatedly declared to be illegal in one state after another. Even in the city of Washington, at least one opinion has been submitted by a duly appointed public official clearly indicating a definite view to the effect that such decisions as have been handed down by a number of courts in various parts of the United States to the effect that practice of medicine by a corporation is illegal are in accord with the law. In so far as I know no public legal authority in Washington has definitely expressed an official opinion concerning the legality or illegality of the practice of medicine by a corporation, but I am specifically informed that the principle involved has been fully covered in a legal opinion uttered by an official of the government of the District of Columbia or an official of the federal government in Washington.

"However all this may be, it is nevertheless a fact that the Group Health Association, Incorporated, has begun operations, and that under the provisions of its by-laws and of its charter, government officials who are paid such salaries as to remove them entirely from the category of the low income group are in position to receive medical service to be provided for them on a cut-rate basis by a corporation engaged in the practice of medicine and actually subsidized by an official agency of the federal government."

The last two paragraphs are not important.

"Very truly yours,
"Olin West."

Exhibit 195 is a carbon copy of a letter of the defendant Woodward to Dr. G. F. Simpson, President, Medical Society of Virginia, Purcellville, Va., Dec. 8, 1937:

U. S. EXHIBIT 195

"Dear Dr. Simpson:

"I do not know whether the Medical Society of the District of Columbia has or has not requested the cooperation of the Medical Society of Virginia in the contest with Group Health Association, Inc., in which the Medical Society of the District of Columbia is now engaged. If your attention has already been called to the situation, no harm will be done by this letter. If it has not, possibly you will see your way clear to take an active part in the contest. Certainly there is every reason why you should do so, not only from the standpoint of national interest, but from the standpoint of local interest, for Group Health Association, Inc., a private lay corporation subsidized by the Home Owners' Loan Corporation or its affiliates, plans to furnish medical, hospital, and nursing service to all employees of the Home Owners' Loan Corporation and its affiliates, and possibly to other employees of the Federal Government, and all 'dependents' of all such employees, who identify themselves with the Association, not only in the District of Columbia, but within ten miles of the District, and possibly even within twenty miles. Such an area will cover a very substantial space in the State of Virginia. The By-Laws of Group Health Association, Inc., provide:"

And it quotes:

"To be able to avail themselves of medical and surgical service, the members or dependents must be located in, or within ten miles of the District of Columbia line, or must come to the City of Washington, D. C., except that the Medical Director may provide for house calls not exceeding twenty miles."

"I am sending you a few reprints of our article on Group Health Association, Inc., that you may find interesting, if you overlooked the article when it was published in THE JOURNAL, and which may be useful in any cooperative work you may undertake.

"I enclose also a clipping from The Evening Star (Washington, D. C.), Nov. 30, 1937, indicating the interest of Senator McCarran of Nevada in the matter. It has occurred to me that possibly you might enlist the interest of your two Virginia Senators, Glass and Byrd, for certainly they are among the most able of all members of the Senate. Senator Byrd is interested, too, in government reorganization, and the maladministration indicated in connection with the activities of the Home Owners' Loan Corporation in the present instance ought to arouse his interest. Senator Glass, as chairman of the Senate Committee on Appropriations, will probably be interested in the fact that the Home Owners' Loan Corporation or some of its affiliates has 'granted' \$40,000 of public money to this private lay corporation, organized with the approval of the Corporation and its affiliates, to enable Group Health Association to furnish medical, hospital, and nursing services, not only to employees of the Home Owners Loan Corporation and its affiliates, but to their dependents, and to employees of other branches

of the Federal Government, at supposedly bargain prices. The movement represents, it seems to me, a rank kind of unauthorized medical practice, and the fact that it is to extend into the State of Virginia should be of interest to you.

"No one in the House of Representatives has as yet manifested any active interest in this matter, and possibly your Representative Woodrum, a member of the House of Representatives Committee on Appropriations might be interested. There is, of course, no reason why other members of the Virginia delegation should not be appealed to, but Representative Woodrum is in a better strategic position to inquire into the situation, without the formality of a congressional investigation, when the Committee on Appropriations of which he is a member is called on to consider the grant by the Home Owners' Loan Corporation or its affiliates.

"According to the Washington Post, December 4, an H. O. L. C. official undertook to justify the grant of \$40,000 of the taxpayers' money to this private corporation as follows:

"Our board of directors decided—" and he is quoting—"that it was legal to make a two-year \$40,000 investment in the health of our employees. We have no intention of continuing the subsidy, as the G. H. A. is expected to become self-supporting. We look upon this investment as similar to departmental installation of air-conditioning—and there's no objection to that!"

And the letter continues:

"Of course, any such attempt at justification is ridiculous.

"In the first place, there is no evidence that the investment made by the H. O. L. C. in air-conditioning was not illegal. If the investment was made with funds that were not appropriated for that purpose, it clearly was illegal. More particularly, however, if the investment was made in air-conditioning the homes of employees of the H. O. L. C. and its affiliates, the operation was clearly illegal, and the present activities of the H. O. L. C. and its affiliates extend into the homes of employees within the District of Columbia and within an area of from ten to twenty miles from the boundaries of the District, for the proposal is to furnish medical, hospital, and nursing service not only to employees of the government, but also to their dependents."

"The attempt at justification is moreover silly, in that the present grant was made without competitive bidding and although intended, allegedly, to provide medical, hospital, and nursing services, it was made to a lay body having no special knowledge of any of such services and possessing at the time of the grant no such services to sell. So far as I am informed, it has . . . under its contract or agreement, and of course, since the \$40,000 is to be a grant, and not a loan, it has given no security for the return of the money.

"All of these matters should actively interest your senators and representatives, and you might even interest them in the competition with independent medical practices in the State of Virginia that will be set up by this federal subsidy of a lay organization to buy and sell medical services for patients in the State.

"Incidentally, I should have mentioned above the fact that Senator King of Utah had announced his interest in the granting of the taxpayers' money to this private lay corporation for furnishing professional services at bargain prices to government employees and their dependents.

"Yours truly,
"W. C. Woodward."

Exhibit 196, carbon copy of a letter from the defendant Woodward to Dr. Thomas E. Neill, President, Medical Society of the District of Columbia, Washington, D. C., Dec. 15, 1937:

U. S. EXHIBIT 196

"Dear Dr. Neill:

"I have just seen a copy of the letter sent by the Chairman of the Federal Home Loan Bank Board, John H. Fahey, to Senator McCarran, under date of December 3, undertaking to justify the expenditure of money collected from the taxpayers of the United States generally for the purpose of subsidizing a lay medical and hospital service for the benefit of the children, wives, and other dependents of such employees of the United States Government, including the Chairman himself, as may identify themselves with Group Health Association, Inc. I have been wondering if any effective answer has been made to the Chairman's letter? Certainly, in view of the publicity that has been given to the letter an answer should be made and given equal or greater publicity, so that at least a reasonable number of the Senators and Representatives in Washington will see it. A devastating answer can be prepared without great difficulty.

"This leads me to inquire as to just who is leading the force of the Medical Society of the District of Columbia in their fight on the federally subsidized practice of medicine and insurance by lay groups in the District of Columbia and adjacent states. Incidentally, will you not let me know if a contest is or is not being waged by the medical profession of the State of Maryland and the State of Virginia against such subsidized lay practice within their respective jurisdictions—for the subsidized Group Health Association, Inc., proposes to carry on its activities anywhere in either of the states named within twenty miles of the boundaries of the District of Columbia, an area much larger than the District of Columbia itself.

"Yours truly,
"William C. Woodward."

An original letter from the defendant Neill to the defendant William C. Woodward in Chicago, dated Dec. 17, 1937:

U. S. EXHIBIT 197

"My dear Dr. Woodward:

"I have your letter of December 15th asking who is leading the fight of the Medical Society of the District of Columbia against socialized medicine. The fight is being led by our Public Relations Counsel, Mr. Fulton Lewis Jr., under a Steering Committee, consisting of Doctors McGovern, Yater, Schreiber and myself, ex-officio member of the committee, together with counsel for the Medical Society, and additional counsel, Mr. George Hoover and Mr. William Leahy.

"We have felt all along that in the case of the H. O. L. C. there was a misappropriation of funds, and I enclose herewith the latest press news dealing with the subject.

"As yet we have not been advised by the Corporation Counsel whether or not this organization is practicing medicine illegally, although the briefs have been presented to him some time ago. I feel that we will be able to break this organization entirely, but I do not feel that the fight ends there, as the socialistic tendency of the present administration is so strong that attempt may be made to pass a bill making these illegal acts legal. Maryland and Virginia, both, due to their proximity to the District of Columbia, are getting interested in this matter, and we feel that every state society in the country should be interested if we are to be the ultimate winners.

"Very sincerely yours,
"Thomas E. Neill."

Exhibit 204, carbon copy of a letter from the defendant Woodward to the defendant Neill, dated Dec. 22, 1937:

U. S. EXHIBIT 204

"Dear Dr. Neill:

"I thank you for your letter of December 17, relative to Group Health Association, Inc.

"Frankly, I cannot conceive of any public relations counsel for a state medical society, unless he is a member of the society and well up in its ranks, leading such fight as you have on your hands. I cannot conceive of its being the function of any public relations counsel to do so unless he is a member of the organization and high up in its rank. For a medical organization to employ a layman to lead such a fight strikes me as an anomaly.

"Of course, your counsel must lead the fight in so far as involves its legal factors. Your public relations counsel may lead the fight in so far as refers to publicity and relative matters. But the whole leadership must devolve on officers and agents of the Medical Society of the District of Columbia, who in the end must be responsible to the Society even for the activities of counsel and public relations counsel.

"You write that your Public Relations Counsel, Mr. Fulton Lewis Jr., is leading the fight under a Steering Committee, consisting of Doctors MacGovern, Yater, Schreiber and myself (yourself), ex-officio member of the committee, together with counsel for the Medical Society, and additional counsel, Mr. George Hoover and Mr. William Leahy. Certainly, however, it seems to me that some one member of the Medical Society of the District of Columbia ought to be personally responsible for what goes on, although with the advice of a committee, of course.

"You write that Maryland and Virginia are getting interested. Yes, I called the attention of the proper officers of the State medical organizations of those two jurisdictions to the situation and suggested that there was something for them to do. It seems to me, however, that it is for you to get into touch with the medical societies of the counties immediately adjacent to the District of Columbia and to get them interested. The members of those organizations have votes; the members of the Medical Society of the District of Columbia have not. Moreover the members of the medical societies in the counties immediately adjacent to the District have an active personal interest in the matter that physicians in Maryland and Virginia in more remote parts of the states have not, and therefore your neighboring medical societies offer a better chance of arousing interest than exists through any other method of approach.

"Yours truly,
"William C. Woodward,
Director."

The minutes of the stated meeting of the Medical Society of the District of Columbia, held Wednesday, Jan. 5, 1938, at 8 p. m.:

"Dr. Thomas E. Neill, President, presiding." (Reading): Present: Drs. Alfaro, Murray, Elward, Thompson, Vaughan, Jacobs, Hiram Reede, Leech, William Gerry Morgan, F. X. McGovern, McChesney, Reichelderfer, H. C. Macatee, Ellison, Coulter, Bernton, Pendexter, Davis, Connolly, Herbst, Chipman, Bennett, and others to the number of about 300.

"The minutes of the previous meeting, held Dec. 16, 1937, were read and approved."

Turning to page 11, and read the last paragraph on that page.

"Dr. R. Arthur Hooe said the forum idea sounds good and he hoped it would lead to something constructive. He felt there was one thing that the medical profession should look squarely in the face and that was that the problem was by no means a one-sided one. There has been a crying demand for years and that demand has not been met by the medical profession. He felt that two things were very important: (1) Organized medicine to stand solidly together; (2) that some time in the near future there should be appointed a committee to ask for a hearing before the various boards of directors of various civil hospitals in Washington, and that the committee should very definitely ask a decision from the boards as to what their hospitals will do in the matter. "Dr. Hooe added that it seems sure that the hospitals will stand by the Society. In regard to Dr. McGovern's suggestion for the Sunday meeting, Dr. Hooe felt that the Medical Society's Auditorium would not accommodate all those who should be invited. He wondered what would be accomplished by such a meeting, in view of the fact that the Society has not at yet adopted any policy."

And the minutes are signed by the defendant C. B. Conklin.

Mr. Leahy:—Will you read beginning on the bottom of page 10, Mr. Lewin, please? That brings up this forum that Dr. Hooe just spoke about.

Mr. Lewin:

"The Secretary thought there might be a combination of forces in these forums. He said there might be a misunderstanding if proper publicity is not given to the Sunday meeting—it might seem

as though the Society was on the defensive. He thought the public forum idea was an excellent plan. He thought there should be some way in which Drs. Christie and Yater could state the position of organized medicine in the present situation along with the advocates of full-time health people."

"Dr. C. N. Chipman was of the opinion that the proposition involved public policy and should be referred to the Executive Committee and the membership should be notified.

"Dr. William P. Herbst Jr., stated that the Society has been on the defensive all along and should present its position to the public so it will not be on the defensive. He thought the more influential men participating in the forum, the more would be accomplished. He felt that it was time for the Society to come out from behind and just say nothing and be constantly attacked by all different sources both sincere and insincere."

"Dr. V. R. Alfaro called attention to the provisions for a Steering Committee and to an article which appeared in the Sunday Post, Jan. 2, 1938, the last paragraphs of which read as follows:"

"That the Society is in no mood for compromise and plans to fight Group Health Association to the end was indicated last night by one of its highest officers.

"Neither the H. O. L. C. plan nor any other prepayment plan is tolerable to the Society," he said. "People who wish to budget their medical expenses are invited to use the Medical-Dental Service Bureau, where fees are reasonably adjusted and payment can be extended over many months."

"Dr. Alfaro pointed out that to his knowledge the Society had not authorized any official to commit the Society and had not gone on record either way. It is at the present time studying the matter. He felt that this type of misinformation to the public should be investigated immediately.

"Dr. Prentiss Willson made a motion that the matter of the newspaper article be referred to the Committee of Censors with instructions that an attempt be made to find out who was responsible for this statement and to take appropriate action. Seconded by Dr. R. A. Hooe. Duly Adopted."

"Dr. Cavanagh restated his motion:

"1. That the Medical Society of the District of Columbia approve in principle the Public Health Forum of Georgetown University.

"Dr. Prentiss Willson offered an amendment, duly seconded and adopted, to the effect that it be added that the Society does not commit itself to any views expressed.

"2. That the subject matter for the current week's program be included in the regular announcements of the Society.

"Upon motion, duly seconded, Dr. Cavanagh's motion, as amended by Dr. Willson, was duly adopted."

Minutes of the business meeting of the Medical Society of the District of Columbia held Feb. 2, 1938, at 8 p. m.:

"Dr. Thomas E. Neill, President, presiding." (Reading): Present: Drs. Gwynn, Mallory, Cavigas, Wall, Yater, Schoenfeld, Mattingly, Herbst, Horgan, Calk, J. Rogers, Young, Trinder, Alfaro, Bolton, Pickford, Mundell, Bernton, Nicholson, and other members to the number of about 90.

"The minutes of the preceding meetings held Jan. 5, Jan. 12, Jan. 19, and Jan. 26, were read and approved."

I would start reading from this meeting on page 11, near the bottom of the page.

"Dr. Thomas E. Mattingly was recognized. He said that a couple of weeks ago a member of the Executive Committee made a statement that Sibley Hospital was wide open for Group Health Association, Inc. He said he wanted to say that the organized profession has not got a stauncher, firmer friend in Washington than Dr. Lewis H. Taylor, and that Dr. Taylor authorized him to say that at no time has H. O. L. C. Group Health Association had a patient in Sibley Hospital, known to be such. He added that not many months ago Dr. Sellers made application to practice in Sibley Hospital, asking for privileges in general medicine, major and minor gynecology, major and minor obstetrics, and major and minor surgery. The gentleman's application was turned down.

"Dr. Mattingly offered the following motions:

"1. That the proper agency of the Medical Society be instructed to present at our next stated meeting the facts relating to the present status of Group Health physicians at the various Washington Hospitals preliminary to appropriate disciplinary action, in event any hospital has ignored the Medical Society's wishes in the premises.

"2. That the proper agency of the Society take immediate measures to ascertain if any member or members of the Society are party to secret understandings and unethical arrangements with Group Health Association, Inc., whereby Group Health patients are admitted to Washington Hospitals and treated under the service or supervision of Medical Society members possessing hospital privileges.

"Upon motion by the Secretary, duly seconded, it was adopted that these motions be referred to the Executive Committee for consideration."

"Dr. R. Arthur Hooe would inquire of Dr. Mattingly whether his name was mentioned in regard to the alleged statement concerning Sibley Hospital.

"Dr. Mattingly answered that it was Dr. Hooe, and the statement was that Sibley Hospital was wide open to Group Health Association, Inc.

"Dr. Hooe said he wished to assure Dr. Mattingly that there never was such a statement made by him nor any other member of the Executive Committee. At the last meeting of the Executive Committee, as a vote of warning, I called the committee's attention to the fact that I had been told in my office but a few days before that Sibley Hospital was admitting one, the surgeon of H. O. L. C. That is a vastly different statement from the aspersion that Sibley Hospital is wide open to H. O. L. C. doctors. My statement was that I had been informed

that one of them was being admitted to practice in Sibley Hospital," Dr. Hooe, therefore asked Dr. Mattingly to convey the message to Dr. Taylor.

"Dr. Mattingly apologized and stated that in all probability he was guilty of a misquotation.

"Dr. Hooe said in that event his message to Dr. Taylor was not necessary.

"C. B. Conklin, Secretary."

Mr. Leahy:—Well, would you read on page 8, please, what the counsel for H. O. L. C. is doing with regard to briefs, beginning on, I think it is, paragraph 8?

"A memorandum of telephone conversation held between the office of Mr. George Hoover and the President of the Society, relative to the present status of Group Health Association, Inc.:

"February 2, 1938.

"Mr. George Hoover phoned me this morning to acquaint me with the facts of what is going on in the Legal Department in regard to the H. O. L. C.

"Mr. Fenning, Mr. Hoover and Mr. Leahy have had consultations and Mr. Fenning had an interview with Mr. Underwood, of the District Attorney's office, and the attorney for the H. O. L. C. had filed a brief which Mr. Hoover and Mr. Leahy thought did not present all the facts and therefore was not the proper brief to present to the judges.

"After Mr. Fenning went away Mr. Hoover has been in touch with Mr. Underwood and as the matter now stands the attorney for the H. O. L. C. has been given until February 16 to comply with the request that they file a brief which is acceptable to all attorneys concerned as the previous one had omitted some very important items. Should the attorney for the H. O. L. C. not comply with this request, Mr. Hoover feels that we should file injunction proceedings as the next step. This requires the names of four members of the Medical Society practicing medicine in the District of Columbia as individuals. I have talked with four gentlemen who are willing to have the Society use their names, Joseph S. Wall, Loren B. T. Johnson, J. W. Burke, and Sterling Ruffin."

"(Memorandum submitted by the president, Dr. Neill.)"

Exhibit 48 is a carbon copy of a letter from the defendant Conklin to the defendant Hooe, chairman, Compensation, Contract and Industrial Medicine Committee, Medical Society of the District of Columbia, Washington, D. C., Feb. 25, 1938:

U. S. EXHIBIT 48

Dear Dr. Hooe:—

"Pursuant to action of the Executive Committee in session on the evening of February 21, 1938, the enclosed resolution submitted to the Society on Feb. 2, 1938, is referred to your committee.

"Very truly yours,
"C. B. Conklin."

Mr. Kelleher:—The resolution is as follows:

"That the proper agency of the Society take immediate measures to ascertain if any member or members of the Society are party to secret understandings and unethical arrangements with Group Health Association, Inc., whereby Group Health patients are admitted to Washington hospitals and treated under the service or supervision of Medical Society members possessing hospital privileges."

Minutes of the Executive Committee of the Medical Society of the District of Columbia held Monday, Feb. 21, 1938, at 8 p. m.:

Defendant Sprigg, chairman, presiding.

(Reading) Present: Drs. Borden, Claud, Gray, Holden, Hooe, McGovern, Neill, John Reed, Hiram Reed, C. B. Conklin, Mr. Charles S. Baker, Acting Counsel, by invitation.

"The minutes of the Executive Session of the committee, held Dec. 10, and meetings of Dec. 27 and Jan. 24 were read and approved."

Now, to turn to page 3:

"The matter of Dr. Mario Scandiffo's trial and the proper action that should be taken at this time by the Executive Committee was now up for discussion.

"Dr. R. Arthur Hooe emphasized that in his conversation with Mr. George P. Hoover there were no legal aspects to the trial and that there were no repercussions that might take place should the Society take action previous to the obtaining of a declaratory judgment which was now before the courts. The court would not be influenced at all.

"Upon motion, duly seconded, it was found, upon ballot, that Dr. Scandiffo was guilty as charged. Seven ballots were in the affirmative; two members not voting.

"Dr. Hooe, at this point, said that Dr. Sterling Ruffin was unable to be present but it was his opinion that Dr. Scandiffo should be expelled from the Society.

"Upon further motion it was recommended to the Society that Dr. Mario Scandiffo be expelled. (Report, finding and recommendation appended.)"

"THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA

"In the Matter of Mario Scandiffo, M.D.

"Whereas, the Compensation, Contract and Industrial Medicine Committee, by its Chairman, R. Arthur Hooe, M.D., under date of Nov. 22, 1937, did submit in writing to the Executive Committee charges against Mario Scandiffo, M.D., a member of the Medical Society of the District of Columbia, specifically charging him with having violated Chapter IX, Article III, Sections 1 and 2, and Chapter IX, Article IV, Section 5, of the Constitution of the Society.

"And whereas, after due notice to the said Mario Scandiffo, M.D., the Executive Committee did hold hearings at which the said Mario Scandiffo, M.D., with his counsel, did appear, did testify in his own behalf, did produce witnesses in his defense, and was accorded full and fair hearing in response to said charges; the said charges were fully and impartially investigated, and at the conclusion of the said hearings, arguments, both oral and written, were submitted by counsel for said Mario Scandiffo, M.D.

"Thereafter, all of the evidence adduced at the said hearings was duly considered by the Executive Committee, and upon consideration thereof, the said Executive Committee, by more than a two-thirds vote, finds the said Mario Scandiffo, M.D., guilty of violating Chapter IX, Article III, sections 1 and 2, and Chapter IX, Article IV, Section 5, of the Constitution of the Medical Society of the District of Columbia, as charged by the Compensation, Contract and Industrial Medicine Committee, and recommends that he be expelled from said Society.

"And it is further ordered, that the report, findings and recommendation of the Executive Committee be submitted in writing to the Medical Society of the District of Columbia at its next regular business meeting for such action as may be deemed proper pursuant to its Constitution."

"William Mercer Sprigg."

I turn back to page 4 of the minutes:

"Relative to certain resolutions that had been prepared by Dr. Thomas E. Mattingly at the meeting of the Society, held Feb. 2, 1938, it was, upon motion, adopted that resolution (a) be referred to the Hospital Committee for consideration and early report, and resolution (b) be referred to the Compensation, Contract and Industrial Medicine Committee.

"At this point Dr. R. Arthur Hooe addressed the meeting, stating that he was in a dilemma as to how to proceed. His telephone rang frequently, telling him of alleged work that had been done by various members of the Society for Group Health Association, Inc.

"Dr. Thomas E. Neill turned over to Dr. Hooe a written statement at this time which would tend to show that two members of the Society were guilty of working for the Group Health Association. This statement had come from Dr. M. F. Kennedy and the information was based upon prescriptions for glasses that had reached Teunis, Opticians."

Dropping down to the bottom of the page:

"The Secretary also spoke of a letter from Dr. W. C. Woodward which he had allowed Dr. F. X. McGovern to read, in which Dr. Woodward's interest was expressed in resolutions that had been prepared by the Secretary, decrying the attitude as expressed in an editorial of the New England Journal of Medicine at Jan. 20, 1938.

"The Secretary was instructed to furnish Dr. McGovern and his Committee on Public Relations with copy of Dr. Woodward's letter, so that his committee could take the proper action relative to the Secretary's resolutions."

"C. B. Conklin, Secretary."

Exhibit 83, an original letter from C. B. Conklin, Secretary of the Medical Society of the District of Columbia to Dr. J. Ogle Warfield Jr., Chairman of the Committee on Hospitals of the Medical Society of the District of Columbia, dated Feb. 25, 1938:

(Reading):

U. S. EXHIBIT 83

"Dear Dr. Warfield:

"Pursuant to action of the Executive Committee, in session on the evening of Feb. 21, 1938, the enclosed resolution, which was presented to the Society at the Business Meeting in February, was ordered referred to the Hospital Committee for consideration and report.

"Very truly yours,

"C. B. Conklin, M.D."

The enclosed resolution is as follows:

(Reading):

"That the proper agency of the Medical Society be instructed to present at our next stated meeting the facts relating to the present status of Group Health physicians at the various Washington hospitals preliminary to appropriate disciplinary action, in event any hospital has ignored the Medical Society's wishes in the premises."

(In the absence of the jury counsel argued over the admission of various documents.)

Exhibits 312, 314, 315, 316, 317, 318, 319, 320 and 321; and 313 is admitted without the handwritten notation at the bottom (handing papers to the Court).

(Document entitled "Committee on Hospitals, 1937-38" heretofore marked Government Exhibit 312 for identification was thereupon offered in evidence.)

(Letter from J. Ogle Warfield, M.D., to Dr. W. Warren Sager, dated Feb. 3, 1938, heretofore marked Government Exhibit 313 for identification was thereupon offered in evidence, without the handwritten notation on the bottom thereof.)

(Document heretofore marked Government Exhibit 314 for identification was thereupon offered in evidence.)

(Document heretofore marked Government Exhibit 315 for identification was thereupon offered in evidence.)

(Document heretofore marked Government Exhibit 316 for identification was thereupon offered in evidence.)

(Document heretofore marked Government Exhibit 317 for identification was thereupon offered in evidence.)

(Document heretofore marked Government Exhibit 318 for identification was thereupon offered in evidence.)

(Letter on letterhead of National Homeopathic Hospital signed Frances Whitlock Hall, Superintendent heretofore marked Government Exhibit 319 for identification, was thereupon offered in evidence.)

(Letter from Columbia Hospital for Women to Dr. J. Ogle Warfield, heretofore marked Government Exhibit 320 for identification was thereupon offered in evidence.)

(Letter from Earle G. Breeding, M.D., to Dr. John H. Trinder, dated Feb. 8, 1938, heretofore marked Government Exhibit 321 for identification was thereupon offered in evidence.)

(After extended argument over the admission of documents:)

(Rough draft of resolution heretofore marked Government Exhibit 324 for identification, was thereupon received in evidence.)

FEBRUARY 21, AFTERNOON

(After extended argument on the admission of various documents:)

(The documents heretofore marked Government's Exhibits 295, to and including 311 for identification, were received, as indicated, in evidence.)

TESTIMONY OF WILLIAM FREDERICK PENNIMAN

RE-DIRECT EXAMINATION

By Mr. Kelleher:

Q.—Mr. Penniman, I believe you told us when you were on the stand before you saw Dr. Allan E. Lee, Friday, December 10; is that correct?

A.—That is correct.

Q.—Where did you see him?

A.—Well, I saw him twice. I saw him in my office the afternoon of Friday and on about 4 o'clock, I think, or 4:30.

Q.—Now, will you tell us what occurred at that meeting with him?

A.—Well, he was very much perturbed—

Mr. Leahy:—I object, if your Honor please; move that be stricken.

THE COURT:—Pardon me. I was occupied with something else for a moment. Whom are we speaking about here?

Mr. Kelleher:—Dr. Allan E. Lee.

Mr. Leahy:—He asked what occurred, and the witness started in to make a description of the attitude of Dr. Lee.

THE COURT:—Yes. In substance tell us what was said.

The Witness:—Dr. Lee told me he didn't see—

Mr. Leahy:—I object to what was said.

Mr. Lewin:—Well, he has been asked what he said by his Honor.

Mr. Leahy:—I am objecting to what he said.

THE COURT:—I was not passing on it. I did not realize there was an objection.

Mr. Richardson:—It is pure hearsay.

Mr. Magee:—It is pure hearsay.

Mr. Lewin:—Your Honor, this was the matter you reserved before until our proof reached this position. Now we submit that the proof has reached such a point where we are entitled to take the statements that Dr. Allan E. Lee made to this witness. The proof so far has shown what happened to Dr. Lee, who was a doctor of Group Health, and that he was resigning from Group Health under these circumstances.

THE COURT:—Well, you want to show through this gentleman why he resigned?

Mr. Lewin:—We want to show what Dr. Lee told him, as an admission.

Mr. Richardson:—Against whom?

Mr. Kelleher:—Against everybody.

Mr. Lewin:—Against everybody who has been connected up with the case so far.

Mr. Kelleher:—Your Honor, may I make this further observation? We intend to show that by the time he talked with Mr. Penniman he had taken steps which would connect him up.

THE COURT:—Connect whom up?

Mr. Kelleher:—Connect Lee up with the alleged conspiracy.

Mr. Leahy:—In other words, Dr. Lee is a conspirator now.

Mr. Lewin:—Well, now, you know what the legal term is.

THE COURT:—Well, just a minute. We won't argue about it.

Mr. Leahy:—Another contention.

THE COURT:—I sustain the objection. It is obviously hearsay, and there is nothing here to make him a conspirator at the present time. The whole theory of the case has been otherwise up to this moment.

Mr. Kelleher:—Your Honor, we just have to explain. If we could explain this to your Honor at the bench, I think you might—

THE COURT:—Well, I am just stating my reasons. I sustain the objection.

By Mr. Kelleher:

Q.—Mr. Penniman, when you were on the stand before you had testified that you had received a letter from the defendant Custis addressed to you, which is now in evidence. After you had received that letter did you talk with Colonel Randall?

A.—I did.

Q.—Who is Colonel Randall?

A.—Colonel Randall is the president of the Homeopathic Hospital.

Q.—And when did you talk with him?

A.—Well, I first talked with Colonel Randall at the night of the dinner.

Q.—Now, but I want your conversation only after you had received the letter. Was that after the clinic had opened?

A.—Yes. Yes, that was after the clinic had opened.

Q.—Now, will you tell us what occurred at that meeting with Colonel Randall?

A.—Well, Colonel Randall was very much impressed with the—

Mr. Leahy:—I object again, if your Honor please.

By Mr. Kelleher:

Q.—Tell us what he said, Mr. Penniman.

A.—He said that he was—

Mr. Leahy:—I object to what he said.

THE COURT:—Just a minute. What is the ground of your objection, Mr. Leahy?

Mr. Leahy:—Hearsay, if your Honor please, what Colonel Randall said to him.

Mr. Kelleher:—Your Honor.

THE COURT:—What is your ground for its admission?

Mr. Kelleher:—The ground for the admission is that the hospital has already notified Mr. Penniman that Group Health Association doctors will not be admitted on the staff. Colonel Randall was acting for the hospital in contacting Mr. Penniman after this letter was written.

THE COURT:—Well, do you claim that the proof shows him to be a conspirator?

Mr. Lewin:—Not Colonel Randall personally. The hospital for which he was acting, the National Homeopathic Hospital. It is so alleged in the indictment.

THE COURT:—That is what you allege?

Mr. Kelleher:—Yes, your Honor. We contend that a prima facie case has now been established against Homeopathic, and that Colonel Randall was acting for the hospital.

Mr. Leahy:—Does your Honor care to hear from me?

THE COURT:—I should like to, please.

Mr. Leahy:—This is a most unusual ground which is urged for admission of testimony of this character. All there is here in the evidence at this time is that Homeopathic Hospital, which is a hospital which has the right to admit or refuse any one on any one of its staffs, which is a private institution governed by a board of trustees, notified the Group Health—I think that is the letter over Dr. Custis—that until a contract was approved, as I remember the letter, that this particular institution, G. H. A., or words to that effect, would not be admitted to the hospital.

Now, that is all there is in this case to show that they joined this conspiracy which took about 14 or 15 pages to talk about, had about three or four hundred doctors, which is introduced here; and just because Homeopathic Hospital didn't want to admit the G. H. A., with no reasons expressed for it, other than stated, they now say that that hospital is a conspirator. Well, now, surely everybody who did anything which G. H. A. criticizes isn't made a conspirator. You have got to go further and show more in evidence than that before they can ever show Homeopathic is a conspirator. And even if it was what Colonel Randall said, I don't know what Colonel Randall is.

Mr. Lewin:—It has been testified to.

Mr. Leahy:—There is no proof of his authority to speak for the hospital, and having an idle conversation with the witness, everything that Colonel Randall said is to be admitted by way of hearsay. If your Honor please, there are no grounds in the testimony up to this time to admit conversations which are clear hearsay, on the tenuous theory that, because one letter is written, therefore the hospital is a conspirator and anybody who acts for the hospital is likewise a conspirator, so his statement may be treated as an admission and made admissible.

Mr. Lewin:—May I reply? May it please the Court, I am sure that Mr. Leahy wanted to be accurate, but I don't think he was. Your Honor will remember, in the first place, the great amount of evidence that came from the District Medical Society itself concerning the participation of the hospitals, the attempt to bring them in, and the success that attended their efforts. That is the participation. That is the point admitted in evidence; elaborate procedure under which the hospital committee chairman was able to report complete success.

Now he says there is nothing else in the case against the National Homeopathic, which shut its doors to Group Health Association, except its own individual choice, as an individual corporation. That is the claim he makes before your Honor.

Now, let us see if that is true. Here is the letter from the executive officer of the board of trustees of the National Homeopathic Hospital. J. B. Gregg Custis, a defendant in this case, writes to this gentleman on the stand, Mr. Penniman—this is in evidence—Nov. 9, 1937:

"At a board of trustees meeting held on November 4, 1937, it was voted that until the Group Health Association was approved by the Medical Society of the District of Columbia, the National Homeopathic could not make any contract or enter into any agreement with it."

Is that individual action of an individual corporation, or is that positive proof that the District Medical Society had taken the little independent National Homeopathic into camp to work against a group of doctors because these defendants frowned on those doctors?

Now, I ask if there is some more evidence in this case to correct my dear friend Mr. Leahy. Here is some evidence that your Honor just admitted, and it is over the signature of the superintendent of the National Homeopathic Hospital, and it is an answer to a questionnaire that the defendant Warfield, the chairman of the hospital committee of the District Medical Society, wrote to each one of the hospitals, including National Homeopathic, and these are the questions that he asked, and these are the answers that the superintendent of that hospital sent back to him:

"Questionnaire. What communication has your hospital had from Group Health Association, Inc.?" And the answer:

"Received circular letter dated November 8,—"

Mr. Kelleher:—In evidence.

Mr. Lewin:—And that is in evidence.—"asking for admission for the Group Health patients and the Group Health doctors."

"What reply has your hospital made to Group Health Association, Inc.?"

And here is the answer: No action would be taken until Group Health Association was approved. By the hospital? No. Acting independently, as my brother says? No. Approved by the District Medical Society, this powerful outside organization.

"Question: Which, if any, of the following doctors are now members of your medical staff in any capacity or have privileges to practice in your hospital?"

And here come the Group Health doctors:

"Henry Rolf Brown?"

"Answer: No.

"Allan E. Lee?"

"Answer: Yes.

"Mario Scandiffo?"

"Answer: Yes.

"R. Stephen Holbert?"

"No.

"Raymond E. Selders?"

"No.

"Edmund C. Wells?"

"No."

Now, here is written on the side of it in this hospital response: "Courtesy staff: Lee, obstetrics; Scandiffo, pediatrics. Both have had patients in the hospital formerly. Future action regarding them awaits the action taken by the District Medical Society."

I will ask you if that bears out the representations that were made by my brother.

THE COURT:—I think I am able to rule, if you will step here a moment. I should like to know just what the nature of the proof is.

(Here came extended discussion out of hearing of the jury.)

Mr. Kelleher:—Exhibit 17, which has been identified as a carbon copy of a letter from William F. Penniman to Sister Rosa, Superintendent, Providence Hospital, dated Nov. 8, 1937.

Mr. Kelleher:—Exhibit 17 is a carbon copy of a letter from Penniman to Sister Rosa, Superintendent, Providence Hospital, Second and D Streets, Southeast, Washington, D. C., Nov. 8, 1937:

U. S. EXHIBIT 17

"Dear Sister Rosa:

"For your information, I am attaching hereto a copy of a letter addressed to the Providence Hospital, requesting permission to admit patients who are members of the Group Health Association to the hospital upon the request of the Medical Director.

"Also, a request to permit Dr. Raymond E. Selders, Surgeon, who is attached to the staff of the Group Health Association, to attend these patients while hospitalized.

"For your further information, there is attached a record of Dr. Selders' education, training and experience.

"Your assistance in obtaining prompt and favorable action will be very much appreciated.

"Very truly yours,
William F. Penniman,
President."

Exhibit 326 is Sister Rosa's reply, as acting superintendent of Providence Hospital. It is dated Nov. 9, 1937. It is addressed to William F. Penniman, President, Group Health Association, 1328 Eye Street, Northwest, Washington, D. C.:

U. S. EXHIBIT 326

"Dear Sir:

"We acknowledge receipt of your letter of November 8th. In reply wish to state that we will accept members of the Group Health Association as patients in Providence Hospital, according to the rules and regulations of our Hospital, at the customary rates for a period not to exceed twenty-one days.

"We are enclosing an application form requesting Surgical privileges, to be filled out by Dr. Selders, and on receipt of same will be pleased to place it before our Medical Board for its approval, which is our usual procedure.

"Very truly yours,
Providence Hospital,
per Sister Rosa,
Acting Superintendent."

Mr. Kelleher:—Exhibit 327 is Mr. Penniman's reply to Sister Rosa, dated Nov. 11, 1937:

U. S. EXHIBIT 327

"Dear Sister Rosa:

"Please accept our thanks for your very prompt and courteous reply to our letter addressed to the Providence Hospital, under date of November 8th.

"We note with pleasure that the Providence Hospital will accept Members of the Group Health Association as patients, according to the rules and regulations of your hospital, at the customary rates. The Group Health Association will be responsible for the payment of the costs of hospitalization at customary rates, in each case for a period limited to 21 days for any one illness, for each patient admitted upon the request of the Medical Director.

"Dr. Raymond E. Selders, Surgeon, attached to the staff of the Group Health Association, has filled out and signed the application form requesting surgical privileges which you enclosed and the same is being returned to you herewith. Dr. Selders has asked me to say to you that upon approval of his application he will be happy to extend to the Providence Hospital the fullest cooperation in all matters where it is felt that he would be useful. It would be much appreciated if early consideration of Dr. Selders' application could be made.

"Again thanking you, I am

"Very sincerely yours,
William F. Penniman,
President."

Q.—Will you tell, will you explain, what you meant when you said this: "Dr. Selders has asked me to say to you that on approval of his application he will be happy to extend to the Providence Hospital the fullest cooperation in all matters where it is felt that he would be useful?"

A.—Well, it was intended to mean that Dr. Selders, if he were there attending a Group Health patient, and an accident, an emergency case, or anything came in, Dr. Selders would be glad to lend his assistance in connection with the work in the hospital—do anything there that they would ask of him, cooperatively.

Mr. Kelleher:—Exhibit 328 is a letter from C. C. Caylor, Secretary, Providence Hospital, to Mr. William F. Penniman, President, Group Health Association, Inc., 1328 Eye Street, Northwest, Washington, D. C., dated Nov. 18, 1937:

U. S. EXHIBIT 328

"Dear Mr. Penniman:

"The application of Dr. Raymond E. Selders for surgical, gynecological and obstetrical privileges in Providence Hospital was presented to the Executive Staff of the Hospital today. The application was referred to the committee on Surgical Privileges for consideration and report which procedure is in accordance with our established custom.

"Dr. Selders will be notified promptly upon the Committee's report.

"Sincerely yours,
C. C. Caylor, M.D.,
Secretary."

Exhibit 329 is a carbon copy of another letter of Mr. Penniman's, addressed to C. C. Caylor, Secretary, Providence Hospital, dated Dec. 14, 1937:

U. S. EXHIBIT 329

"Dear Dr. Caylor:

"On November 18th you informed us that the application of Dr. Raymond E. Selders for surgical, gynecological and obstetrical privileges in Providence Hospital had been referred to the Committee on Surgical Privileges for consideration.

"The purpose of my letter at this time is to inquire if this committee has as yet had an opportunity to complete its investigation and whether Dr. Selders' application has been approved.

"Your prompt reply will be appreciated.

"Yours very truly,
William F. Penniman,
President."

Exhibit 18, identified as a carbon copy of a letter from Mr. Penniman to Captain Chester Wells, President, Board of Trustees, Columbia Hospital, dated Nov. 8, 1937.

Mr. Kelleher:—Exhibits 330, 331, 332, 333 and 334.

Exhibit 18 is a carbon copy of a letter written by Mr. Penniman to Captain Chester Wells, President, Board of Trustees, Columbia Hospital, Colorado Building, Washington, D. C., Nov. 8, 1937:

U. S. EXHIBIT 18

"Dear Captain Wells:

"For your information I am attaching hereto a copy of a letter addressed to the Columbia Hospital, requesting permission to admit patients who are members of the Group Health Association to the hospital upon the request of the Medical Director.

"Also, a request to permit Dr. Raymond E. Selders, Surgeon, who is attached to the staff of the Group Health Association, to attend these patients while hospitalized.

"For your further information, there is attached a record of Dr. Selders' education, training and experience.

"Your assistance in obtaining prompt and favorable action will be very much appreciated.

"Very truly yours,
William F. Penniman,
President."

Exhibit 330, an original letter from P. M. Ashburn, Superintendent, Columbia Hospital for Women, dated Nov. 9, 1937, addressed to William F. Penniman, Group Health Association, Inc.:

U. S. EXHIBIT 330

"Dear Sir:

"I acknowledge receipt this morning of your letter of November 8th, requesting Columbia Hospital to admit members of the Group Health Association for customary hospital service upon the request of its Medical Director, Dr. Henry Rolf Brown, and also that Dr. Raymond E. Selders be allowed to attend these patients while hospitalized.

"I have no doubt that the Executive Committee of the Board of Directors, to which I shall submit this matter at its meeting on Monday, November 15th, will be glad to agree to accept members of your organization for customary hospital service upon the request of its Medical Director.

"As for the request that Dr. Selders be allowed to treat these patients while they are in the hospital, I must inform you that nobody is allowed to treat patients in the hospital except physicians who have been appointed to either the regular or the courtesy staff by the Board of Directors. Dr. Selders has not been so appointed, nor has he made application for appointment. I therefore take pleasure in forwarding herewith a form of application and a letter of information and instructions in regard to such application. I would add that applications received from medical men desiring courtesy privileges are uniformly referred to the Medical Board of the hospital which considers and makes recommendations in regard to them to the Board of Directors. So far as my experience and observation go, the Board of Directors has always accepted the Medical Board's recommendations.

"The next meeting of the Medical Board will be on the evening of Tuesday, November 23rd, and I recommend that Dr. Selders' application be submitted before that date.

"Yours very truly,
P. M. Ashburn,
Superintendent."

And attached to Colonel Ashburn's letter is a form notice to the doctor, headed, "Dear Doctor"; and instructing him on the steps to be taken by him to obtain courtesy privileges.

Exhibit 331 is a letter from William F. Penniman, President, to Columbia Hospital for Women, Twenty-Fifth and L Streets, N. W., Washington, D. C., dated Nov. 11, 1937:

U. S. EXHIBIT 331

"Gentlemen:

"Please accept our thanks for your very prompt and courteous reply to our letter addressed to the Columbia Hospital for Women, under date of November 8th.

"We note with pleasure your statement that you have no doubt that the Executive Committee of the Board of Directors, to which you will submit this matter, at its meeting on Monday, November 15th, will be glad to accept members of the Group Health Association for customary hospital service, upon the request of the Medical Director.

"With reference to our request to permit Dr. Raymond E. Selders, Surgeon, attached to the staff of the Group Health Association, to attend

these patients while so hospitalized, we have had Dr. Selders complete the application, which you enclosed with your letter, and the same is being returned to you herewith.

"Dr. Selders has asked me to say to you that upon approval of his application he will be happy to extend to the Columbia Hospital for Women the fullest cooperation in all matters where it is felt that he would be useful.

"An early reply from you will be appreciated.

"Very sincerely yours,
William F. Penniman,
President."

Mr. Kelleher:—Exhibit 332 is a letter from Penniman to Captain Chester Wells, President, Board of Trustees, Columbia Hospital for Women, dated Nov. 18, 1937:

U. S. EXHIBIT 332

"Dear Captain Wells:

"Please accept my very sincere thanks for your very prompt and courteous reply to my letter of November 8th, requesting the admission of members of the Group Health Association for customary hospital service upon the request of its Medical Director, Dr. Henry Rolf Brown, also to permit Dr. Raymond E. Selders, Surgeon, attached to the staff of the Group Health Association, to attend these patients while hospitalized.

"Colonel Ashburn, your Medical Superintendent, wrote us very promptly, stating that he had no doubt that the Executive Committee of the Board of Directors, to which he would submit this matter at its meeting on Monday, November 15th, would be glad to agree to accept members of our organization for customary hospital service upon the request of its Medical Director.

"With respect to our request concerning Dr. Selders, Colonel Ashburn enclosed a form on which he could make application, together with a letter of information and instructions with regard to preparing such application. The application form was promptly filled out by Dr. Selders and returned to the Columbia Hospital for Women, addressed to the attention of Colonel Ashburn, under date of November 11th.

"Because of the extreme urgency of this matter, we are hopeful of a prompt and favorable reply.

"With very regards, I am

"Sincerely yours,
William F. Penniman, President."

Mr. Kelleher:—Exhibit 333 is a letter from Penniman to Colonel Ashburn, dated Dec. 14, 1937:

U. S. EXHIBIT 333

"Dear Colonel Ashburn:

"You will recall our letter written to you under date of November 11th in response to your letter of November 9th concerning our request to have the Columbia Hospital for Women admit members of the Group Health Association for customary medical service and to permit Dr. Raymond E. Selders, Surgeon, attached to the staff of the Group Health Association to attend these patients while hospitalized.

"We would deeply appreciate knowing whether or not the Executive Committee of the Board of Directors has as yet had an opportunity to act on Dr. Selders' application which was submitted to you with our letter of November 11th.

"Your prompt reply will be very much appreciated.

"Yours very truly,
William F. Penniman,
President."

And Exhibit 334 is Colonel Ashburn's reply to Mr. Penniman dated Dec. 15, 1937:

U. S. EXHIBIT 334

"My Dear Mr. Penniman:

"Replying to your note of yesterday, I have the honor to inform you that Dr. Selders' application for courtesy privileges has not yet gone from the Medical Board to the Board of Directors or its Executive Committee.

"The Medical Board will hold its next meeting on December 28th, and it may then make a recommendation, but I cannot know that it will.

"Very truly yours,
P. M. Ashburn,
Superintendent."

Exhibit 335 is an original letter from Sister Mary Rodriguez, Superintendent, Georgetown University Hospital, dated Nov. 18, 1937, addressed to Mr. Penniman:

U. S. EXHIBIT 335

"My Dear Mr. Penniman:

"I have referred your letter of November 8th, to the Executive Staff for their consideration.

"I shall be pleased to communicate with you concerning their decision.

"Sincerely yours,
Sister Mary Rodriguez."

Exhibit 336 is a carbon copy of a letter from Penniman to Sister Mary Rodriguez, dated Dec. 14, 1937; Sister Mary Rodriguez of Georgetown University Hospital:

U. S. EXHIBIT 336

"Dear Sister Rodriguez:

"On November 18th, you acknowledged receipt of our letter dated November 8th stating that it had been referred to the Executive Staff for their consideration. You will recall that our letter requested the George-

town University Hospital to admit members of the Group Health Association for customary hospital service upon the request of its Medical Director, Dr. Henry Rolf Brown, and to permit Dr. Raymond E. Selders, attached to the staff of the Group Health Association to attend these patients while hospitalized.

"Would you be good enough to inform us whether or not the Executive Staff has as yet had an opportunity to take action on our request.

"Your prompt reply will be appreciated.

"Yours very truly,
William F. Penniman,
President."

Exhibit 337 is Sister Mary Rodriguez's reply to Mr. Penniman, dated Dec. 16, 1937—Sister Mary Rodriguez, Superintendent at Georgetown University Hospital:

U. S. EXHIBIT 337

"My Dear Mr. Penniman:

"Your letter dated November 8, was referred to the Executive Staff at its last regular meeting, Dec. 13, 1937.

"I have been instructed to inform you that the hospital will be glad to admit patients from the Group Health Association.

"It is however, and has been for some time, a regulation of this institution that no physicians or surgeons shall be permitted to treat patients within the hospital except those whose formal applications have been approved by the Credential Committee.

"To this date we have not received a formal application from Dr. Selders for privileges to practice in the Georgetown University Hospital.

"With every good wish, I remain

"Sincerely yours,
Sister Mary Rodriguez."

Exhibit 338 is Mr. Penniman's reply to Sister Mary Rodriguez:

U. S. EXHIBIT 338

"My dear Sister Rodriguez:

"I acknowledge with pleasure the receipt of your letter of December 16th, in which you advise that you have been instructed to inform us that the Georgetown University Hospital will be glad to admit patients who are members of the Group Health Association.

"I am aware of the regulations of the various hospitals with respect to the requirement of having Dr. Selders' application approved by the Committee on Credentials, before he is permitted to treat patients while so hospitalized. Each of the hospitals, however, have their own application blanks which they forwarded for completion by Dr. Selders. I assume that the Georgetown University Hospital likewise has an application blank of this type. If you would be good enough to forward a blank, Dr. Selders will be happy to immediately fill it out and return it to you.

"Pending such investigation as is found to be necessary, some of the hospitals have been good enough to grant permission to Dr. Selders to treat emergency cases, explaining that this is a customary privilege extended to physicians and surgeons who are duly licensed to practice in the District of Columbia. If this temporary courtesy could be extended to Dr. Selders in the interim period, it would be greatly appreciated.

"Thanking you, I am

"Very sincerely yours,
William F. Penniman,
President."

Mr. Kelleher:—Government Exhibit 340 is a letter dated Dec. 28, 1937, addressed to Sister Mary Rodriguez:

U. S. EXHIBIT 340

"Dear Sister Mary Rodriguez:

"I wish to apply for admission to the courtesy staff of the Georgetown University Hospital, and will appreciate it very much if you will kindly forward me the necessary application blanks.

"Very respectfully,
Raymond E. Selders, M.D.,
Surgeon."

(Here there was extended discussion of the documents out of hearing of the Jury.)

Mr. Kelleher:—I now offer in evidence Exhibit 21, which has been identified as a carbon copy of a letter from William F. Penniman to Garfield Hospital, dated Nov. 8, 1937; and Exhibit 22, which is a carbon copy of a letter from William F. Penniman to Mr. Aspinwall, Garfield Hospital, dated Nov. 8, 1937, attached to which is a carbon copy of the qualifications of Dr. Raymond E. Selders.

Q.—I show you Government Exhibit 341 and ask you whether that is the reply which you received from Dr. Francis J. Eisenman, Superintendent of Garfield Memorial Hospital, to your letter of November 8.

Now similar series of letters were offered covering correspondence between G. H. A., and the superintendents and chiefs of the staffs of all Washington hospitals:

(To be continued)

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Change in Status.—H. R. 2112 has been reported to the Senate, authorizing the Secretary of the Navy to appoint in time of war or national emergency declared by the President to exist, for temporary service, such acting assistant surgeons as the exigencies of the service may require. H. R. 3204 has passed the House and Senate, making additional appropriations for the fiscal year 1941 urgently required for the Work Projects Administration and certain other federal agencies. Among other things, this bill provides for the remaining four months of the fiscal year 1941 an appropriation of \$525,000 to enable the Surgeon General of the Public Health Service to assist states and local health authorities in health and sanitation activities (1) in areas adjoining military and naval reservations, (2) in areas where there are concentrations of military and naval forces, (3) in areas adjoining government and private industrial plants engaged in defense work and (4) in private industrial plants engaged in defense work. This appropriation will be available too to provide emergency health and sanitation services in government industrial plants engaged in defense work and in areas adjoining United States military and naval reservations outside the United States. According to the report of the House Committee on Appropriations, the over-all purpose of this appropriation is to enable the Public Health Service to employ doctors, nurses, public health engineers, bacteriologists and supplemental personnel to coordinate the public health work between the military authorities of the reservations and the local health authorities on the outside. This cooperation, the committee reports, will extend to such problems as water supply, milk supply, sanitation, communicable diseases and other health situations which arise in areas where there are large concentrations of military and civilian personnel in connection with the intensified defense effort.

Bills Introduced.—S. 955, introduced by Senator Guffey, Pennsylvania, proposes to authorize the Secretary of the Interior to make certain inspections and investigations in coal mines to obtain information relating to health and safety conditions, accidents and occupational diseases therein. H. R. 161, introduced by Representative Voorhis, California, proposes to amend the Social Security Act to provide aid to states for care of transients. The bill proposes a federal appropriation for the fiscal year ending June 30, 1942 of \$10,000,000 and thereafter such sums as may be necessary to enable each state to furnish financial assistance, or other assistance, including but not limited to medical, dental and mental aid, as far as practicable, to needy transients. H. R. 3571, introduced by Representative McCormack, Massachusetts, provides that no individual who is licensed to practice medicine under the laws of any state, territory or the District of Columbia shall be ineligible for appointment, or for examination for appointment, as a medical officer in the active or reserve components of the military or naval forces of the United States solely by reason of any rating or classification of the medical school from which such individual was graduated. H. R. 3534, introduced by Representative May, Kentucky, provides for the continuation in the service of the Army, Navy, Marine Corps and Coast Guard of the United States beyond the term of their enlistment those suffering from disease or injury incident to service and not due to misconduct, and in need of medical care or hospitalization. H. R. 3484, introduced by Representative Byron, Maryland, provides for retirement pay and hospital benefits to certain Reserve officers, Army of the United States, disabled while on active duty. S. 970, introduced by Senator Gurney, South Dakota, proposes an appropriation of \$1,000,000 to construct a veterans' hospital and diagnostic center in the First Congressional District of South Dakota.

DISTRICT OF COLUMBIA

Bill Introduced.—H. R. 3506, introduced by Representative Smith, Virginia, proposes to direct the Commission on Licensure to Practice the Healing Art to issue a license to practice chiropractic in the District of Columbia to J. A. Brown.

STATE MEDICAL LEGISLATION

Arizona

Bill Introduced.—H. 164 proposes to enact a separate chiroprody practice act and to create a board of chiroprody examiners to examine and license applicants for licenses to practice chiroprody. "Chiroprody," states the bill, "means diagnosis or medical, surgical, mechanical, manipulative, or electrical treatment of ailments of the human foot and leg, but does not include amputation of foot, toe, or leg nor administration of an anesthetic other than local."

Arkansas

Bills Introduced.—S. 210 proposes that, within three years after the license of any physician has been revoked, the licentiate shall be granted a probationary reinstatement for one year and if during the probationary period, the licentiate has not been proved guilty of violating any law or the ethics of his profession, his license shall be fully restored. H. 409 proposes to condition the issuance of a license to marry on the presentation by the male of a physician's certificate that within fifteen days prior to the date of the application he has examined the male to determine whether or not he is afflicted with any venereal disease or is idiotic, feeble-minded, imbecilic, epileptic or insane and that in his opinion the male is free from the aforementioned diseases and conditions as nearly as can be determined by a thorough physical examination and such standard microscopic and serologic tests as are necessary for the discovery of venereal diseases. H. 448 proposes that whenever a physician is convicted of any crime involving moral turpitude, in addition to any other criminal penalty or penalties which may be imposed on him, the court trying the case may suspend or revoke his or her license to practice in the state. However, if sentence is suspended, or the convicted physician is placed on probation or is not made to suffer the penalty prescribed in the judgment of conviction, that fact shall not prevent the board from revoking his license, provided however that, if the court before whom such convicted physician was tried declines to suspend or revoke his license, then the board shall not have the power to suspend or revoke his license. H. 472 proposes that in the trial of any defendant charged with (1) having committed negligent homicide while under the influence of intoxicating liquor or (2) driving a vehicle under the influence of intoxicating liquor, the court shall admit evidence of the amount of alcohol in the defendant's blood at the time of the alleged driving, as shown by chemical analysis of his breath, urine or other bodily substances.

Connecticut

Bills Introduced.—S. 225 and H. 1325 propose to authorize the maintenance, within or apart from the state sanatoriums, of facilities and personnel for the detection of tuberculosis in its early stages and for the rehabilitation of the tuberculous. S. 227 and H. 1327 propose to create a Commission on the Care of the Chronically Sick and Infirm to study the extent of the needs for the care of the chronically ill in the state and to report its findings and recommendations to the governor before Jan. 1, 1943. S. 776 and H. 2144 propose that each state employee shall be given a physical examination by the state every six months "if such employee during the performance of his duties comes in contact with any contagious disease." S. 1057 and H. 2425 propose that "No person shall be employed by the state until he shall have [been] examined by a licensed physician in the employ of the state and shall have been certified to be in sufficiently good physical condition to make it seem probable that he will be able to efficiently discharge the work of the position to which he is to be appointed and that he has no physical weakness which is likely to result in a sickness or disability expense to the state." H. 185 and S. 388 propose to require every physician attending a pregnant woman during gestation to take or cause to be taken a sample of her blood within thirty days from the date of the first examination and to submit the sample to an approved laboratory for a standard serologic test for syphilis. H. 662 and S. 1563 propose that, whenever in a civil or criminal proceeding issues arise on which

the court deems expert evidence desirable, the court, on its motion or on the motion of either party, may appoint one or more experts, not exceeding three on each issue, to testify at the trial. H. 933 and S. 1809 propose to authorize boards of education to require each pupil enrolled in the public schools to have a health examination either by a legally qualified practitioner of medicine or by the school medical adviser at least once in each three year interval.

Delaware

Bill Introduced.—S. 15 proposes to enact a uniform state act concerning liens for money due physicians, dentists, nurses, hospitals and others for services rendered for the relief and cure of injuries caused by the fault and neglect of persons other than the injured person.

Georgia

Bills Introduced.—S. 119 proposes to prohibit physicians, dentists, osteopaths, chiropractors, chiropodists, optometrists or pharmacists from using before their name the prefix "Dr." or "Doctor" on letterheads, signs, directories, cards or in any form of advertisement and to require such persons to designate after their names on such material the particular profession they practice. S. 120, to amend the medical practice act, proposes to require applicants for licenses to have graduated from a medical school or college of good standing which, as a minimum preliminary educational requirement, requires the completion of an accredited high school course. The present law requires graduation from a medical school in good standing which has a minimum preliminary educational requirement of a two year premedical college course. H. 310 proposes to permit cities and counties or one or more counties to form public bodies corporate and politic to be known as hospital authorities, which may construct, operate and maintain projects embracing hospitals, sanatoriums, clinics, dormitories, housing accommodations or other public buildings in connection with hospital projects and utilities. H. 402 proposes so to amend the osteopathic practice act as to require applicants for licenses to practice osteopathy to have completed not less than two years of college work in an approved college of arts and sciences, to have obtained a diploma from some reputable school of osteopathy requiring a course of study of at least four terms of nine months each, and to pass examinations in anatomy, physiology, chemistry, toxicology, pathology, diagnosis, hygiene, obstetrics, gynecology, surgery, medical jurisprudence, principles of osteopathy, bacteriology and such other subjects as the board may require. The bill proposes that "Osteopaths in this state are hereby, and shall hereafter be, authorized to practice as taught and practiced in the legally incorporated and reputable colleges of osteopathy, as is now and has been since 1909 provided for and prescribed in the licenses issued to them by the officials of this state." The bill also proposes so to amend the optometry practice act and the narcotic drug act as to provide that the term "physician," as used in both of those acts, shall include an osteopath.

Idaho

Bills Introduced.—S. 153 proposes to prohibit the retail sale and distribution of amytal, luminal, veronal, barbital, acid diethylbarbituric, para-amino-benzene sulfonamide, sulfanilamid, sulfamidyl, prontylin, prontosil, neo prontosil, neo prontylin, edimalin, sulfonamid or any salts, derivatives or compounds of any of the foregoing substances, except on the written prescription of a licensed physician, dentist or veterinarian. H. 156 proposes to enact a separate massage practice act and to require the Department of Law Enforcement to appoint a board of examiners of not less than three licensed professional masseurs to examine applicants for licenses to practice "Professional Massage."

Illinois

Bills Introduced.—H. 149, to amend the law conditioning the issuance of a license to marry on the presentation by each party to the proposed marriage of a physician's certificate as to freedom from venereal disease, proposes that the person whose name is set forth in the physician's certificate shall sign the certificate in the presence of the physician before the certificate is filed in the office of the county clerk. H. 168 proposes to

authorize the establishment and operation of two state hospitals for the care of persons afflicted with certain incurable maladies. H. 231 proposes to enact a separate naprapathic practice act and to require the Department of Registration and Education to appoint an examining committee of "qualified Naprapaths" to examine applicants for licenses to practice naprapathy. The bill defines naprapathy as "a method and system of practical and scientific treatment of the human body for remedial and hygienic purposes, without the use of medicine or operative surgery." Naprapaths, the bill proposes, are to be permitted, among other things, to apply heat and electricity and to "use of modern therapeutic appliances, such as the use of infra-red, ultra-violet rays, short wave electric currents, and diathermy treatment."

Indiana

Bills Introduced.—S. 118 proposes that every board of education and school trustee shall require a physical examination for tuberculosis, including adequate laboratory tests and x-rays, of all school employees at least once in three years. "Such examinations, tests and x-rays shall be made only by duly licensed doctors of medicine." H. 561 proposes to prohibit the retail sale and distribution of barbital except on the prescription of a licensed physician, dentist or veterinarian. The bill states that "barbital" means "Barbital and any derivative thereof; diethylbarbituric acid; any alkyl, aryl, metallic halogenated derivative of barbituric acid; veronal (barbitone); propanal; ipral; dial; neonal (soneryl); sandoptal, amytal; phenobarbital (luminal); phandorn; noctal; allonal (which contains allylisopropyl-barbituric acid in combination with amidopyrine); medinal; any preparation, mixture or other substance containing any of the foregoing substances." This bill was reported favorably to the house, February 19.

Kansas

Bills Introduced.—S. 214 proposes to authorize the organization and operation of mutual nonprofit corporations to operate hospital service plans for their members. S. 223 proposes to enact a separate naturopathic practice act and to create an independent board of naturopathic examiners to examine and license applicants for licenses to practice naturopathy. The bill proposes to define naturopathy as "the diagnosis and treatment of diseases, injuries, and deformities of human beings by means of water, light, heat, electricity, diet, air, massage, vegetables, fruits, grains or combinations of these, together with exercise. These agencies are known as hydrotherapy, phototherapy, thermotherapy, electrotherapy, dietetics and phytotherapy." Naturopathic licentiates are not to administer or prescribe drugs, practice surgery, osteopathy, chiropractic, optometry or Christian science. H. 265 proposes to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of a physician's certificate that the party had been given a physical examination, including a standard serologic test as may be necessary for the discovery of syphilis, made not more than thirty days prior to the date of issuance of the license, and that in the opinion of the physician the party either is not infected with syphilis or, if so infected, is not in a stage or condition of that disease which is or may become communicable to the marital partner or to any issue.

Maine

Bill Introduced.—S. 411 proposes to authorize the department of health to make investigations concerning cancer and the prevention and treatment thereof and to take such action as it may deem will assist in bringing about a reduction in mortality.

Maryland

Bills Introduced.—H. 367 proposes that "Whenever any physician, pharmacist, dentist, hospital or nurse treats any person in Somerset County for any injury which was caused by or shows evidence of having been caused by an automobile accident or by a lethal weapon he or she, or in the case of a hospital, the individual then in charge thereof, shall, as soon as practicable, notify the Sheriff of Somerset County and the State Police of such fact, giving such person's name and address, if known, a description of the injury, and any other facts concerning the affair which might assist in the detection of crime." H. 374 proposes to condition the issue of a license to marry on

the presentation by each party to the proposed marriage of a physician's certificate that the party has been given such examination, including a standard serologic test, as may be necessary for the discovery of syphilis, made on a day not more than the twentieth prior to that on which the license is applied for, and that in the opinion of the physician the party is not infected with syphilis or, if so infected, is not in a stage of that disease whereby it may become communicable.

Massachusetts

Bills Introduced.—S. 502 proposes to enact a separate osteopathic practice act and to create an independent board of osteopathic examination and registration to examine and license applicants for licenses to practice osteopathy. H. 1222 proposes to enact a separate chiropractic practice act and to create an independent board of registration of chiropractors to examine and license applicants for licenses to practice chiropractic. The practice of chiropractic is defined by the bill as the "science of locating, and removing, by hand only, interference with the transmission or expression of nerve force in the human body, where such interference is indicated or misalignment or subluxations of the vertebral column appear. It excludes operative surgery, prescription or use of drugs or medicine, or the practice of obstetrics, except that the x-ray may be used solely for the purposes of examination." H. 1232 proposes to prohibit the operation of a hospital unless licensed by the department of public health.

Michigan

Bill Introduced.—H. 190 proposes to enact a separate naturopathic practice act and to create an independent board of naturopathic examiners to examine and license applicants for licenses to practice naturopathy. The bill proposes to define naturopathy as the art, science and philosophy of natural healing.

Minnesota

Bill Introduced.—S. 627 proposes to make it unlawful for any hospital or institution receiving all or any part of its financial support from state or local taxes to deny to any licensed practitioner of any of the healing arts the privilege of practicing within its confines.

Missouri

Bills Introduced.—S. 37 proposes to condition the issue of a license to marry on the presentation by each party to the proposed marriage of a physician's certificate that the party is free from venereal diseases as nearly as can be determined by thorough physical examinations. Each such certificate must have attached thereto a private or public health laboratory report of the blood Wassermann test or the Kahn test for syphilis or such other serologic tests as shall be approved by the state board of health. H. 78 proposes to enact a separate naturopathic practice act and to create a board of naturopathic examiners.

Montana

Bills Introduced.—Senate Committee Substitute for S. 78 proposes that "Any institution of higher learning in the state of Montana or any accredited hospital school of nursing affiliated therewith, may apply to the State Board of Examiners of the State of Montana for the procurement of unclaimed human dead bodies for the purpose of teaching and demonstration of anatomical science by professional instructors." The bill proposes to authorize the "State Board of Examiners" to permit the delivery by any of the state custodial institutions of any unclaimed human dead body to any institution of higher learning in the state or any affiliated accredited school of nursing for the purposes stated. H. 184 proposes to require every applicant for a license to practice the healing art, as a condition precedent to examination and licensure by his respective professional examining board, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology to be given by a state board of basic sciences. The board is to consist of a professor of bacteriology of the State University of Montana, a professor of chemistry of the State School of Mines, a professor of biology of the State College at Bozeman, the secretary of the Montana State Board of Health, and a pathologist holding a certificate from the American Board of Pathology. H. 220 proposes to require every licensed physician to report annually on October 1 the names

and addresses of all persons 18 years of age and under whom he has examined in the past year and whom he has found to have defective hearing or vision to an extent that it would make attendance at public schools difficult. H. 183 proposes to enact an entire new medical practice act differing in many important particulars from the provisions of the present medical practice act. The bill proposes that the board of medical examiners is to be appointed by the governor from a list certified to him by the Montana State Medical Association. Applicants for licenses to practice, in addition to present qualifications, must be bona fide citizens of the United States. The board is to be given the power to suspend, as well as to refuse to grant or to revoke, licenses. Licentiates are to be required to register annually with the board and at that time to pay a registration fee of \$5. The board is to be given the right in its discretion to license without examination diplomates of the National Board of Medical Examiners. The bill also proposes to authorize courts to enjoin the unlawful practice of medicine or surgery.

Nebraska

Bills Introduced.—Bill 380 proposes that whenever in a civil or criminal proceeding issues arise on which the court deems expert evidence desirable the court, on its own motion or on the motion of either party, may appoint one or more experts, not exceeding three on each issue, to testify at the trial. Bill 430 authorizes the organization of nonprofit corporations to operate nonprofit hospital service plans whereby hospital service may be provided by a hospital or group of hospitals with which such corporations have contracts to such of the public as become subscribers to said corporations under contracts which entitle the subscribers to certain hospital care.

Nevada

Bills Introduced.—S. 50 proposes to authorize the board of county commissioners of any county operating a county hospital to permit the admittance to such county hospitals of pay patients. A. 95 proposes to enact a separate naturopathic practice act and to create an independent board of naturopathic examiners to examine and license applicants for licenses to practice naturopathy. A license to practice naturopathy is to entitle its holder "to diagnose and treat human beings using natural and constructive methods according to the tenets and teachings of chartered and approved standard naturopathic colleges, schools or institutes."

New Jersey

Bill Introduced.—A. 60, to amend the laws relating to the practice of chiropody, proposes among other things (1) to create an independent board of chiropody examiners which, instead of the board of medical examiners, is to examine and license applicants for licenses to practice chiropody and (2) to define chiropody as "the examination, diagnosis, and the local medical, mechanical, surgical, manipulative, and physio-therapeutic treatment of any ailment of the human foot and leg; not including, however, the treatment of recognized osteomyelitis, recognized malignancies, tendon transplantations, amputation of the foot or leg, or the administration of anesthetics other than local."

New Mexico

Bill Introduced.—H. 183 proposes to make it "unlawful for any hospital where surgical operations are performed, and which is exempted or claims exemption from taxation, in whole or in part, on the grounds of being a charitable or nonprofit institution, to refuse to render promptly the necessary medical treatment to any person in case of accident or injury, or in case of any diseased, infected, or abnormal physical condition, which is likely to cause death or severe injury." H. 254 proposes to require each applicant for a license to practice any form of the healing art, as a condition precedent to examination and licensure by his respective professional board, to present a certificate of eligibility and creditability from a state board of medical licensures, which the bill proposes to create. The State Board of Medical Licensures is to consist of a member from each of the legally constituted and existing branches, professions or organizations of the healing arts in the state. The bill proposes that the function of the board shall be to receive, consider,

investigate, approve or disapprove all applications for healing art licenses in the state whether by reciprocity or by written examination. No written examination testing the medical or professional knowledge of the applicant is to be given by the board, but the board is to confine its examination and investigation of the applicant to his moral character, fulfillment of the educational requisites provided by the statutes governing the branch of the healing arts for which the applicant requests a license to practice and of such other facts and matters as the board may deem necessary to determine the fitness and qualifications of the candidate, exclusive of written examination.

New York

Bill Introduced.—A. 1114 proposes, in effect, to permit a relief client to select his own licensed physician to provide medical care, at public expense, whenever such care is necessary.

North Carolina

Bills Introduced.—S. 128 proposes to authorize the organization and operation of corporations to operate nonprofit hospital service plans whereby hospital care may be provided by the corporation or by hospitals with which they have contracts for such care to such persons who become subscribers to such plans under contracts which entitle each subscriber to certain hospital care. H. 365 proposes so to amend the definition of "narcotic drug" as used in the uniform narcotic drug act to include also "barbituric acid, which includes luminal, phenobarbital, nembutal, and all barbituric products."

Ohio

Bills Introduced.—S. 141 and S. 189 propose to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of a statement signed by a licensed physician that the party has submitted to an examination to determine the existence or nonexistence of syphilis, which examination has included a standard serologic test or tests for syphilis, and that in the opinion of the physician the party is not infected with syphilis or, if so infected, is not in a stage of that disease which is communicable or likely to become communicable. S. 244 proposes to grant to a hospital treating an injured person a lien for the reasonable charges for hospital care, treatment, maintenance on all causes of actions, suits, claims, counterclaims or demands accruing to the injured person by reason of his injuries.

Pennsylvania

Bills Introduced.—H. 420 proposes to authorize the compulsory sexual sterilization of inmates of state institutions who are mentally defective. H. 472 proposes to appropriate \$20,000 to the department of health for the use of the Land Grant College of Pennsylvania in advancing research in human nutrition for children.

South Carolina

Bills Introduced.—H. 131 proposes that every person contracting a venereal disease shall within twenty-four hours after knowledge of the fact report the fact to the state board of health. H. 149 proposes to make it unlawful to employ any food handler or person whose employment will consist of washing dishes or utensils used in cooking or serving unless the person possesses a health card showing that within ten days prior to the employment he or she has been physically examined by a reputable physician and that in the opinion of the physician is free from contagious or infectious diseases.

South Dakota

Bills Introduced.—S. 279 proposes that municipalities of the third class, in addition to other powers granted, shall have the power to establish, construct and maintain hospitals and medical dispensaries. S. 322 proposes to require hospitals to be provided with an approved fire extinguisher on each floor.

Vermont

Bill Passed.—S. 52 passed the senate, February 24, proposing so to amend the law authorizing the formation and operation of medical service plan corporations as to permit also the operation of similar corporations with respect to optometric service plans.

Bills Introduced.—H. 160 proposes to require every applicant for a license to practice any form of the healing art, as a condition precedent to examination and licensure by his respective professional board, to pass examinations in anatomy, physiology, chemistry, bacteriology and pathology to be given by a state board of examiners in the basic sciences. The board is to consist of five members, appointed by the governor, each member to be a professor, or an assistant or associate professor or an instructor on the faculty of a university or college in Vermont, except that no member shall be a member of the faculty of any college or university which confers degrees in the healing art. H. 168, to amend the osteopathic practice act, proposes, among other things, to require applicants for licenses to practice osteopathy to be graduates of recognized schools of osteopathy requiring a four year course of at least nine months in each year. Under the present law, applicants need be graduates only of schools of osteopathy requiring a three year course of at least nine months in each year.

Washington

Bills Introduced.—S. 247 proposes to establish a system of compulsory health insurance, the benefits of which are to consist of cash and all forms of medical, dental and hospital service. S. 269, to amend the law relating to the care at public expense of needy persons, proposes that in addition to any assistance granted by the state to any applicant there shall be provided to relief clients medical, dental, surgical, optical, hospital and nursing care by county hospitals, where available, and, where not available, by a doctor of the relief client's own choosing.

West Virginia

Bills Introduced.—S. 94 proposes to prohibit the operation of a hospital except by virtue of a license issued by the state committee on hospitals, which the bill proposes to create as a division of the state department of health. S. 108, to amend the medical practice act, proposes, in effect, to except the practice of Christian science from the provisions of the act.

Wisconsin

Bill Introduced.—A. 312, to amend the basic science act, proposes that applicants for licenses to practice chiropractic when being examined in the basic sciences shall be examined and the examination papers shall be graded by chiropractors appointed by the basic science board.

OFFICIAL NOTES

THE CLEVELAND SESSION

Hotels in Cleveland

A list of hotels in Cleveland together with the rates for rooms may be found on page 14 of this issue of THE JOURNAL.

The form printed in the advertising pages may be clipped and when it has been properly filled in should be sent at once to Dr. Edward F. Kieger, Chairman, Subcommittee on Hotels of the Local Committee on Arrangements, Cleveland Convention and Visitors' Bureau, Incorporated, 1604 Terminal Tower, Cleveland, Ohio.

RADIO BROADCASTS

"Doctors at Work" is the title of the sixth annual series of dramatized radio programs being presented by the American Medical Association and the National Broadcasting Company.

Tickets are available for each broadcast. Address the Bureau of Health Education, American Medical Association, 535 North Dearborn Street, Chicago. Tickets are free, but a stamped, self-addressed envelop should accompany requests.

The next three programs to be broadcast, together with their dates and titles, are as follows:

- March 12. Brain Surgeon.
- March 19. First Line of Defense.
- March 26. Health for the Workman.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Course for Practicing Physicians.—Members of the staff of Tulane University of Louisiana School of Medicine, New Orleans, conducted a course for physicians of Mobile and vicinity early in February. The lecturers included:

- Dr. Howard R. Mahorner, Common Surgical Lesions of the Abdomen; Goiter.
- Dr. Arthur Neal Owens, Burns, Wounds and Skin Cancer.
- Dr. Michael E. DeBakey, Peripheral Vascular Diseases; Carcinoma of the Breast.
- Dr. Conrad G. Collins, Leukorrhea and Pruritus; Uterine Bleeding.
- Dr. Edward Perry Thomas, Causes of Lower Abdominal Pain and Discomfort; Uterine Cancer.
- Dr. Warren H. J. Hebert, Anal Infections; Hemorrhoids.

ARKANSAS

Youth Health Program.—The National Youth Administration has inaugurated a youth health program in Arkansas as a part of the defense movement. The plan, as outlined by the youth administration, has been approved by the Arkansas Medical Society and the Arkansas Dental Association and an advisory committee appointed to cooperate in the movement, comprising Dr. Sidney J. Wolfermann, Fort Smith, for the state medical society; I. M. Sternberg, D.D.S., Fort Smith, for the dental association, and Dr. William B. Grayson, Little Rock, for the state board of health. A state health supervisor, advised by a physician as health consultant, will direct the program. Physical examinations will be made by local physicians in cooperation with the county medical societies.

CALIFORNIA

Society News.—The San Francisco County Medical Society was addressed, February 11, by Drs. Douglas W. Montgomery and Langley Porter, San Francisco, on "Development of the Teaching of Dermatology in San Francisco" and "Development of Pediatrics in the West" respectively. The Los Angeles Surgical Society was addressed, February 14, among others, by Drs. Albert J. Scholl on "Gunshot Wounds of the Kidney" and Rupert B. Raney, "Low Back Pain in Relation to Organic Neurologic Causes." At a meeting of the Los Angeles Heart Association and the internal medicine section of the county medical association on February 5 Dr. Emanuel Libman, New York, discussed "Varieties of Endocarditis and Their Clinical Interpretation."

GEORGIA

The Block Memorial Lecture.—Dr. John Farquhar Fulton, Sterling professor of physiology, Yale University School of Medicine, New Haven, delivered the annual E. Bates Block Memorial Lecture before the Fulton County Medical Society, Atlanta, February 27. His subject was "Neurologic Developments in the Present War."

ILLINOIS

Society News.—Dr. Chauncey C. Maher, Chicago, discussed "Valvular Disease of the Heart" before the Adams County Medical Society in Quincy, February 10. Dr. Bert I. Beverly, Chicago, addressed the Edgar County Medical Society in Paris, February 27, on "Behavior Problems in Children." The Kane County Medical Society was addressed in Elgin, February 12, by Dr. Jacob P. Greenhill, Chicago, on "Recent Advances in Gynecologic Endocrinology."

Chicago

Dr. Walters to Deliver McArthur Lecture.—Dr. Walterman Walters, Rochester, Minn., will deliver the seventeenth Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago, March 28, at the Palmer House. His subject will be "Pathologic Physiology of the Common Bile Duct."

Medical Symposium.—Northwestern University Medical School marked the fiftieth anniversary of Zeta Chapter of Nu Sigma Nu with the following program in Thorne Hall, February 19:

- Dr. Edward Stanley Ryerson, Toronto, Canada, Philosophy of Health and Medical Practice.
- Dr. Esmond R. Long, Philadelphia, Recent Trends in Pathology.
- Dr. Reginald Fitz, Boston, The Advancement of Medicine and Internship Problems.
- Dr. Dallas B. Phemister, Chicago, Modern Trends in Surgery.
- Dr. Morris Fishbein, Editor of THE JOURNAL, Medicine and the Preparedness Program.

LOUISIANA

New Professor of Pediatrics.—Dr. Chester A. Stewart, clinical professor of pediatrics, University of Minnesota Medical School, Minneapolis, has been appointed professor and head of the department of pediatrics, Louisiana State University School of Medicine, New Orleans, effective July 1. Dr. Stewart received his degree in medicine at Minnesota in 1919. He has been a member of the faculty since 1913, having served for several years as instructor in anatomy and later in pathology. Other changes in the Louisiana medical school include the following on a part time basis:

- Dr. Charles A. Bahn, professor of ophthalmology.
- Dr. Isidore Cohn, professor of surgery.
- Dr. Samuel Karlin, clinical assistant in surgery.
- Dr. Eleazar R. Bowie, clinical professor of radiology and director of the department of radiology.
- Dr. Frederick King Vaughan, assistant professor of obstetrics and gynecology.

State Board of Health Reorganized.—The Louisiana State Board of Health has been reorganized with Dr. John H. Musser, professor of medicine, Tulane University of Louisiana School of Medicine, New Orleans, as state health director. Under the new setup, the director of health will not be a member of the board, which is to be made up of nine members. Eight have already been named: Dr. Eugene B. Vickery, New Orleans, chairman; Dr. Joseph E. Knighton, Shreveport, vice chairman; Leo J. Schoeny, D.D.S., New Orleans, secretary; Mr. Monte M. Lemann, New Orleans; Mr. V. C. Cupp, Ruston; Mrs. Charles R. Cline, Lake Charles; Dr. Paul King Rand, Alexandria, and Mr. A. Bruce Mouton, Maurice. According to the newspapers, boards which will remain in existence but function under the supervision of the new health department are the board of health, the state tuberculosis commission, the board of medical examiners, the board of dentistry, the board of optometry examiners, the nurses' board of examiners and the board of pharmacy. Dr. Robert H. Onstott, U. S. Public Health Service, who has been serving as full time executive officer of the board, will continue in this capacity under the direction of Dr. Musser. Dr. Ford S. Williams, director of the division of venereal diseases under the old board, is now assistant director of the state board. Dr. Joseph A. O'Hara was president and executive officer of the board from 1928 until his resignation Sept. 1, 1940.

MICHIGAN

Fellowship Awarded.—The Edward and Susan Lowe medical fellowship for 1941 was awarded to Dr. M. Mozart Marrin, staff surgeon of Butterworth Hospital, Grand Rapids, January 13. Dr. Marrin is the first surgeon to receive the award since it was established in 1939. The award is designed for a young member of the hospital staff who shall not have been a member of the senior division of the staff for more than three years. Dr. Marrin graduated at the University of Michigan Medical School, Ann Arbor, in 1932.

Society News.—William W. Greulich, Ph.D., Cleveland, discussed "Physical Growth and Development of Adolescent Children" before the Detroit Physiological Society, January 16. Dr. James Barrett Brown, St. Louis, discussed "Limitations and Possibilities in Reconstructive Surgery" before the Wayne County Medical Society, February 24, in Detroit. Dr. Frank D. Johnson addressed the Genesee County Medical Society in Flint, February 18, on "Mucous Colitis." Dr. Richard H. Freyberg, Ann Arbor, delivered the third annual Crane Memorial Lecture before the Kalamazoo Academy of Medicine, February 18, on "Newer Treatments for Arthritis." Dr. Frederick Collier, Ann Arbor, discussed "Surgical Treatment of Peptic Ulcer" before the academy January 21.

Changes in Health Personnel.—Dr. Paul A. Lindquist, Ann Arbor, has been named medical administrator of the Mason-Manistee-Benzie health unit, with offices in Manistee. He succeeds Dr. Frank J. Hill, who resigned. Dr. Thomas

E. Camper, formerly of Stambaugh, has been appointed director of the Shiawassee County health unit, with offices in Corunna, newspapers reported. He has been succeeded as director of the Iron County health department by Dr. Lorin E. Kerr Jr., Mason.—Dr. Buell H. Van Leuven, Menominee, has been made director of the Grand Traverse County health department, succeeding Dr. John K. Altland. Dr. Van Leuven has been acting director of the Menominee County health unit. He once served as mayor of Petoskey for six years.—Dr. Cletus J. Golinvaux has been placed in charge of the Monroe County health department with offices in Monroe.

MINNESOTA

Special Lectures.—Dr. Paul D. White, Boston, presented a special lecture at the University of Minnesota Medical School, Minneapolis, in the auditorium of the Museum of Natural History, February 28. His subject was "Enlargement of the Heart." Prof. Henrik Dam, Biochemical Institute, University of Copenhagen, lectured in the medical school on February 24. Dr. Dam's lecture was entitled "Vitamin K—Biochemistry and Clinical Application."—Dr. Andrew C. Ivy, Chicago, gave a Mayo Foundation lecture in Rochester, January 16, on "Bile Salt Metabolism as Related to Therapy."

Society News.—The Minnesota Society for the Control of Cancer filed articles of incorporation, Dec. 12, 1940. Officers include Dr. William A. O'Brien, St. Paul, president; Dr. Max W. Alberts, St. Paul, vice president; Mrs. S. L. Carr, Minneapolis, secretary, and Louis W. Hill Jr., St. Paul, treasurer.—Dr. Jacob A. Johnson, St. Paul, delivered the presidential address before the Minnesota Academy of Medicine in St. Paul January 8 on "Diverticula of the Alimentary Canal."—Dr. Carl Eggers, New York, discussed "Carcinoma of the Breast" at the annual meeting of the Minneapolis Surgical Society, February 6.—Wendell M. Stanley, Sc.D., Rockefeller Institute for Medical Research, Princeton, N. J., discussed "Chemical, Medical and Philosophical Aspects of Viruses" before the Minnesota Pathological Society, Minneapolis, January 21.

NEW JERSEY

Course in Tuberculosis.—A lecture and demonstration course in tuberculosis covering bacteriology, epidemiology, pathology, diagnosis and treatment of adult and childhood tuberculosis will be given at the Newark City Hospital, April 3 to May 10, under the auspices of the committee on postgraduate instruction of the Medical Society of New Jersey, the Essex County Medical Society and New York University. The program may be obtained from the Dean, New York University College of Medicine, 477 First Avenue, New York.

Society News.—The New Jersey Gastroenterological Society presented a symposium on lesions of the stomach, duodenum and jejunum at a meeting, February 3, in Newark. The speakers were Drs. William T. Lemmon, Karl Kornblum, Isidor S. Ravdin and Charles L. Brown, Philadelphia; Burrill B. Crohn and John H. Garlock, New York. Dr. Hyman I. Goldstein, Camden, was elected president.—The Medical Society of Cape May County held a meeting in honor of Dr. Watson B. Morris, Springfield, president of the Medical Society of New Jersey, on January 14 at the Ocean City Golf Club, Somers Point. The speakers were Drs. Morris; LeRoy A. Wilkes, executive officer of the state society, Trenton; Aldrich C. Crowe, Ocean City, president of the county society, and Warren D. Robbins, Cape May. Dr. David B. Allman, Atlantic City, presented a paper entitled "A Potpourri of Surgery."

NEW YORK

Society News.—Dr. William Osler Abbott, Philadelphia, addressed the Medical Society of the County of Westchester, White Plains, February 18, on "Clinical Uses of Long Intestinal Tubes." The society met jointly with the Westchester Society of Gastroenterology.

New York City

Sixth Harvey Lecture.—Walter J. Meek, Ph.D., professor of physiology and assistant dean of the University of Wisconsin Medical School, Madison, will deliver the sixth Harvey Society Lecture of the current series at the New York Academy of Medicine, March 20. His subject will be "Cardiac Effects of the Inhalant Anesthetics and the Sympathomimetic Amines."

Personal.—Dr. Leonard J. Goldwater has recently been promoted to be assistant professor of medicine at New York University College of Medicine.—Dr. Edward S. Rimer has been elected president of the Society of Alumni of Bellevue Hospital.—Harold C. Urey, Ph.D., professor of chemistry, Columbia University, received the Davy Medal of the Royal Society of England in recognition of his isolation of deuterium, the heavy hydrogen isotope, and for his work on the use of this and other isotopes in following the detailed course of chemical reactions, according to *Science*.—Dr. George M. Wheatley, recently principal pediatrician in charge of the school health service of the New York City Department of Health, has been appointed an assistant medical director for the Metropolitan Life Insurance Company.—Dr. Alexis Carrel sailed, February 2, on the *Siboney* to study the effects of malnutrition and cold on war victims. He went first to Spain and later was to visit France and Belgium.—Dr. Franklin M. Foote, chief of the division of local health administration in the Connecticut State Health Department, Hartford, has been appointed district health officer for the Kips Bay-Yorkville Health and Teaching Center. He succeeds Dr. Leona Baumgartner, now acting director of the bureau of child hygiene of the city health department.—Dr. Emil Altman, for twenty-two years a member of the medical division of the board of education and for the past seventeen years its chief examiner, has applied for retirement, effective immediately.

OHIO

Changes in Health Officers.—Dr. Harry G. Southard, Marysville, has been appointed health commissioner of Hocking County.—Dr. Wilbert W. Lawrence, Norwalk, has been appointed health officer of Huron County to succeed Dr. Robert P. Scott Jr., who has left for military service.—Dr. Alexander S. Mack, Oak Harbor, has been appointed health officer of Ottawa County to serve during the absence of Dr. Cyrus R. Wood, Port Clinton, who is in military service.

Society News.—Dr. Spencer Braden, Cleveland, addressed the Lorain County Medical Society, Elyria, January 14, on "Neurosurgical Management of Cranial and Intracranial Injuries."—Dr. Peter A. Rosi, Chicago, addressed the Clark County Medical Society, Springfield, January 15, on "Surgical Treatment of Peptic Ulcer."—Dr. Joseph A. Muenzer, Toledo, discussed "Silicosis and Related Chest Conditions" before the Seneca County Medical Association, Tiffin, January 9.—Dr. Claire L. Straith, Detroit, addressed the Academy of Medicine of Lima and Allen County, January 21, on plastic surgery.—Dr. Max T. C. Schnitker, Toledo, addressed the Henry County Medical Society, Napoleon, January 14, on "Treatment of Acute Head Injuries."

PENNSYLVANIA

Dr. Donaldson Appointed Editor.—Dr. Walter F. Donaldson, Pittsburgh, secretary of the Medical Society of the State of Pennsylvania, has been appointed editor of the *Pennsylvania Medical Journal*, succeeding Dr. Frank C. Hammond, Philadelphia, who is now editor emeritus. Dr. Hammond was appointed editor of the *Atlantic Medical Journal*, predecessor of the present state journal, in 1925. He was for many years dean of Temple University School of Medicine and recently retired as professor of gynecology.

Philadelphia

Dr. Stadie to Receive Phillips Award.—Dr. William Christopher Stadie, associate professor of research medicine, University of Pennsylvania School of Medicine, will receive the John Phillips Memorial Medal for 1941 at the annual meeting of the American College of Physicians in Boston, April 21-25. The award goes to Dr. Stadie in recognition of his "significant contributions to the knowledge of anoxia, cyanosis and the physical chemistry of hemoglobin and more especially for his recent studies on the subject of fat metabolism in diabetes mellitus." Dr. Stadie has been associate professor of research medicine at Pennsylvania since 1925.

Dr. Macfarlane Honored.—Dr. Catharine Macfarlane, professor of gynecology at the Woman's Medical College of Pennsylvania, recently received the annual Gimbel Award of an embossed scroll and \$1,000 in recognition of her clinical research on the control of cancer in women. This award is conferred each year on an outstanding woman living in the Philadelphia area. Dr. Macfarlane is the first in the field of science to receive it. In accepting the check from Mr. Ellis A. Gimbel, the donor, Dr. Macfarlane announced that one half of the money would be used for cancer control work and the

other half would be donated to the Woman's Medical College Hospital in honor of the late Mrs. Fridolyn Gimbel, mother of Mr. Gimbel. Dr. Macfarlane graduated from the Woman's Medical College in 1898 and has been professor of gynecology there since 1922. She is the author of a "Textbook of Gynecology for Nurses."

Pittsburgh

Society News.—At a meeting of the Allegheny County Medical Society, February 18, the speakers were Drs. Leo D. O'Donnell, "Biliary Tract Disease and Its Treatments"; John R. Simpson, "Acute Laryngotracheobronchitis," and Theodore O. Elterich and Joseph A. Gilmartin, "Modern Concepts on the Management of Infantile Diarrhea."

Pittsburgh Has a Health Show.—The Allegheny County Medical Society, the General Health Council of Allegheny County and the Pittsburgh Department of Health are sponsoring a health show at the Buhl Planetarium and Institute of Popular Science. Exhibits from the Hall of Man at the Medicine and Public Health Building at the New York World's Fair, with the addition of exhibits showing the work of numerous local agencies and organizations, make up the show, which opened on February 21 and will continue six weeks. Many of the exhibits feature demonstrations at regular hours, with trained lecturers giving the demonstrations.

TENNESSEE

Hospital News.—W. Harvey Reaves, Greenville, has presented to the East Tennessee Tuberculosis Association a sanatorium valued at \$40,000, fully equipped. The gift was made in memory of Mr. Reaves' daughter, who died five years ago of tuberculosis. The new institution, located near Greenville, has been named the Learline Reaves Sanatorium.

Personal.—Oren A. Oliver, D.D.S., Nashville, and Dr. John R. Thompson Jr., Jackson, were recently appointed members of the state public health council for three year terms, according to a newspaper report.—Dr. James P. Moon, Dyersburg, health officer of Dyer County, has been appointed health officer of Franklin County to succeed the late Dr. Victor J. Ganey.

TEXAS

Society News.—Dr. Walter Grady Reddick, Dallas, addressed the Jefferson County Medical Society, Beaumont, January 13, on "Treatment of Pneumonias." Dr. Edward L. King, New Orleans, addressed the society recently on "Use of Analgesics in Obstetrics."—Dr. Edwin L. Rippey, Dallas, was the guest speaker before the Hunt-Rockwall-Rains Counties Medical Society, Greenville, January 14, on treatment of pneumonia and Dr. Harry Milton Bradford, Greenville, discussed diagnosis and treatment of pellagra.—A program on pneumonia was presented before the Dallas County Medical Society, February 13, by Drs. Henry M. Winans, Robert R. Shaw, Warren E. Massey and Asa E. Seeds. All are of Dallas.

WASHINGTON

Hospital News.—Pierce County Hospital, Tacoma, has received a grant of \$13,400 for installation of a physical therapy department for the treatment of infantile paralysis victims. Two respirators have been presented to the hospital by the Lumber and Sawmill Workers' Union.

Society News.—Dr. Frederick A. Slyfield, Seattle, addressed the Walla Walla Valley Medical Society, Walla Walla, February 13, on diseases of the chest, with special emphasis on modern treatment of pneumonia.—Dr. Troy Moore, Colfax, discussed headaches at a meeting of the Whitman County Medical Society, Colfax, February 6.—Drs. John H. Fitzgibbon and Willard F. Hollenbeck, Portland, addressed the Cowlitz County Medical Society, Longview, January 15, on "Treatment of Peptic Ulcer" and "Treatment of Chronic Ulcerative Colitis" respectively.—Dr. Henry H. Dixon, Portland, spoke on "The Scientific Approach and Treatment of the Nervous Tension State" at a meeting of the Yakima County Medical Society, Yakima, January 13.—Drs. Frederick A. Slyfield, Seattle, and Charles M. Jessico, Fort Steila-coom, addressed the Pierce County Medical Society, Tacoma, January 14, on "Diseases of the Chest" and "The Myelographic Diagnosis of Intramedullary Spinal Cord Tumors" respectively.

WISCONSIN

Joint Meeting of Special Groups.—Members of the Chicago Laryngological and Otolological Society will be the guests of the Milwaukee Oto-Ophthalmic Society at a meeting in Milwaukee, March 11. The speakers will include Drs. John

R. Lindsay on "Carcinoma of the Esophagus"; Howard C. Ballenger, "Chronic Mastoiditis"; Paul H. Holinger, who will present a color motion picture of the larynx, and Samuel Salinger, who will report a case of congenital angioma of the nose and forehead, with cure by radium and surgery. All are from Chicago.

Annual Clinic Meeting.—The Racine County Medical Society held its annual clinic meeting in conjunction with the staff of St. Luke's Hospital, Racine, January 15, at the Racine Country Club. Speakers on an afternoon program were:

Dr. Newell C. Gilbert, Chicago, Reflex Vasoconstriction of the Coronary Arteries.

Dr. William S. Middleton, Madison, Pneumonia, Its Treatment and Complications.

Dr. Charles H. Slocumb, Rochester, Minn., Diagnosis of Arthritis.

Dr. Ralph M. Waters, Madison, Anoxia in Relation to Nonvital Pain-Relieving Drugs and Anesthesia.

Dr. Erich M. Uhlmann, Chicago, Tumors of the Female Organs.

Dr. Slocumb and Dr. Uhlmann spoke at a dinner meeting on "Industrial Aspects of Arthritis" and "Modern Concepts of Malignancy and Its Therapy" respectively.

Dr. Sevringhaus on Travel Grant to South America.—Dr. Elmer L. Sevringhaus, professor of medicine, University of Wisconsin Medical School, Madison, has received a government travel grant to visit South America, under the provisions of the Second Deficiency Appropriation Act of 1940, which provided funds for the exchange of distinguished cultural, professional and artistic leaders between the United States and the other American republics. Dr. Sevringhaus was to leave from Miami by plane February 20, going to Buenos Aires by way of Santiago, Chile. He was to attend the Pan American Congress of Endocrinology in Montevideo, Uruguay, March 5-8, and deliver lectures there. From March 13 to 18 he will lecture in Buenos Aires and will return to the United States about March 23.

GENERAL

Health in Civilian Conservation Corps.—Among the 254,925 enrollees on duty in the Civilian Conservation Corps during October 1940 the admission rate to sick report, calculated on an annual basis, was 836 per thousand, an increase over the rate for the previous month, 743. The rate for the respiratory group of diseases increased to 203.8 from 170.6 for the previous month; practically all other diseases showed a decrease. There were 12 cases of rheumatic fever, 4 of cerebrospinal meningitis, 1 of poliomyelitis and 1 of tularemia during the period. Forty-six deaths occurred during the month, 17 due to disease and 29 due to injury; of the former, 2 were caused by cerebrospinal meningitis, 2 by appendicitis, 1 by pneumonia, 1 by arteriosclerosis, 4 by diseases of the coronary arteries, 18 by automobile accidents and 5 by truck accidents.

Motor Vehicle Deaths Increase.—Motor vehicle deaths in one hundred and fifty-eight cities reporting to the U. S. Bureau of the Census increased 3.4 per cent over the number for the previous year, the bureau has reported. There were 8,441 deaths reported in 1940 and 8,162 in 1939, according to preliminary reports. Seventy-six cities showed increases; seventy-one showed decreases and eleven reported the same number of deaths. Eight of the cities having populations of 500,000 or more in 1940 showed increases as follows: New York 1 per cent, Detroit 13.5, Los Angeles 12, Baltimore 2.4, St. Louis 91.5, Boston 7.1, Pittsburgh 11.6 and Milwaukee 25. Five large cities showed decreases: Chicago 4.4 per cent, Cincinnati 13, Washington, D. C., 24.4, San Francisco 13.2 and Buffalo 22.9. The report is a summary of the provisional figures published weekly during the year.

Training in Medical Librarianship.—The Orleans Parish Medical Society, New Orleans, announces a residency in medical library work. Requisite qualifications for appointment include college and library school training and an evidence of fitness for this type of work by personality and aptitude. The appointment carries a salary and is for a term of one year, subject to temporary extension by mutual consent. The work will be done in the library of the Orleans Parish Medical Society and the Rudolph Matas Medical Library of Tulane University, comprising a collection of more than sixty thousand volumes. The course is personally directed by the librarian in charge of the two libraries and proposes to cover a study of medical library administration used in these libraries and a comparison with varying methods used elsewhere. Any one wishing further information about the new residency should address the Librarian, Orleans Parish Medical Society, 1430 Tulane Avenue, New Orleans.

The Indictment of the American Surgical Trade Association.—The following statement is sent by Mr. Fred B. Hovey, secretary of the American Surgical Trade Association:

An Associated Press release to the newspapers of the country on Wednesday, February 19, announced the indictment of the American Surgical Trade Association, certain of its officers and certain member firms. This release contained the following statement as to the indictment:

The defendants are charged specifically with conspiring to limit and prevent the production and sale of surgical supplies that were imitations or copies. This was accomplished, the indictments allege, by adopting a registration plan under which any member of the association could register any article that was first produced by a member. Then they agreed, the indictments added, that no other member would produce or sell this item or any imitation for five years.

The indictments also charge that the association boycotted any articles produced elsewhere, thus giving the association a five year monopoly.

A study of the indictment discloses that the press release has correctly summarized the charge.

From the indictment it appears that the government considers that the Association's activity of registering new articles was a violation of the Federal Anti-Trust Laws. If the Association's activity was conducted as the government charges there might be some basis for such a charge; but, as probably every member familiar with the Association's registration activity knows, the facts as stated in the press release are not correct.

In view of the fact that this activity of the Association is now charged by the Government to be illegal, it seems advisable to give the following brief history of the development of the Association's registration activity and its operation.

A study of old issues of the A. S. T. A. journal discloses that, at least as early as 1922, members of the Association, largely dealers, advocated the establishment of a registration bureau by the Association.

At least two laudable objectives, to be accomplished by the establishment of a registration bureau, were discussed.

One was that by the establishment of a registration bureau the surgical trade could be informed as to where a newly devised surgical item could be obtained that faithfully followed the originator's design. This was particularly important in the case of surgical instruments where comparatively small variations from the approved pattern might destroy the usefulness of the instrument.

The second objective may be considered as a logical consequence of the first objective. At the time the registration activity was first considered American makers of surgical instruments could not produce as cheaply as foreign makers (about 90 per cent of surgical instruments sold in the United States were made in Germany) and if the American maker was not known as the producer of the correct design of instrument and the only competition between the American originator of an article and a foreign copyist was on a price basis the American producer of the original article could not hope to successfully compete with the foreign copyist.

The fact that American manufacturers of surgical goods who brought out a new article that proved popular were unable to meet foreign competition strongly tended to dissuade American makers of surgical articles from going to the very substantial expense of cooperating with a surgeon who had an idea for a new surgical article in producing the numerous hand made models usually necessary before a satisfactory pattern was evolved and it was believed that registering new articles would stimulate their production.

The American instrument maker was faced with a condition that might be characterized as "Heads you win, tails I lose" because if the article that he developed in cooperation with the surgeon did not prove popular few would buy it and he would lose the money he had spent in developing it; if it proved popular and there was a substantial demand, the foreign surgical instrument manufacturer could produce the article cheaper and drive him out of the market.

The plan was not designed to include staple items and the proportion of registered articles sold in the surgical trade to total sales in the surgical trade during any year was probably not greater than 0.0001 to 1 (one hundredth of one per cent).

The idea of a registration bureau was considered for about four years before such a bureau was established. Before the decision by the Association to register new articles was made, the Attorney General of the United States was asked to give an opinion as to the legality of the activity, which he refused; and very eminent independent counsel was employed to pass on the activity and gave an opinion, to which he still adheres, that the activity was legal. Further, Alfred Littauer, known to all the older men in the surgical trade, who was one of the fathers of the plan, consulted eminent counsel in New York City who gave as his opinion that the plan was lawful.

The plan was put in operation. It was purely informative. No agreement was asked for or accepted from members that they would give registered articles a preference. Members did from time to time buy copies of registered articles from others than the original manufacturer and no member was boycotted for doing so. The plan did not produce all the results hoped for by those who first conceived it, as is evidenced by the fact that more articles were registered during the first seven years during which the plan was in operation than during the second seven years.

After the registration of new articles was undertaken by the Association, the activity was carried on openly, current registrations being published almost every month in the A. S. T. A. journal.

For many years after the Association began its registration activity, no question was raised as to its legality; and in recent years at least two trade organizations, i. e. Fashion Originators' Guild and Millinery Creators' Guild, were organized for the specific purpose of protecting their members against the "piracy" of their original designs.

The registration activity of the Fashion Originators' Guild included requiring purchasers from members of the Guild to sign an agreement that they would not buy imitations ("piracies") of registered articles and the boycotting of those who would not enter into such agreements; and yet this registration plan when first considered by a court was held legal by the United States District Court of Massachusetts in 1936, and this decision was upheld by the United States Circuit Court of Appeals for the First District. Later in 1940 the plan was held illegal by the Circuit Court of Appeals for the Second Circuit and the legality of that plan is now before the Supreme Court of the United States.

That the registration plan of the A. S. T. A. was devised only to stimulate production of new articles is evidenced by the facts, previously mentioned, that staple articles were not registered, that probably not more than 1/100th of one per cent of total sales in the surgical trade were of registered articles, and that the use of the plan during the years it was in existence lessened instead of increased. It is inconceivable if the plan was operated to enable the producers of registered articles to increase their prices that the use of the plan would not have grown.

It is possible that the decision by the Supreme Court of the United States in the pending case involving registration activities may clarify the law as to registration activities of the Association; otherwise the legality of the Association's registration activity which involved neither the obtaining of any agreements from members with reference to registered articles nor boycotting of those who bought copies of registered articles from others than the registrants will probably have to be decided by the courts.

LATIN AMERICA

New Journals of Ophthalmology.—A new ophthalmologic journal has recently appeared in Brazil under the direction of Dr. Moacyr E. Alvaro, São Paulo, *Ophthalmologia Ibero Americana*. The journal is to be published quarterly and contains, besides original articles, a section of abstracts, society proceedings, book reviews, news and other notes.—The first issue of the *Boletín del Hospital Oftalmológico de Nuestra Señora de la Luz*, Mexico City, recently appeared. The bulletin will publish papers and case reports from members of the staff. The first issue gave a history of the hospital, the first special hospital for diseases of the eye in Mexico.

Postgraduate Lectures.—A series of postgraduate lectures for physicians of the Republic of Panama was presented recently at the Gorgas Memorial Laboratory and the Hospital Santo Tomas in Panama. Dr. Oswald S. Lowsley, New York, gave a four weeks course of lectures and demonstrations in urology. Dr. Maxwell M. Wintrobe, Baltimore, lectured on hematology and Dr. Charles Murray Gratz, New York, on orthopedic surgery. It is planned to make the courses an annual event.—Dr. Joseph Jordan Eller, New York, gave a series of lectures on "Tumors of the Skin" at the Faculty of Medicine of Costa Rica, San José, in November.

New Venezuelan Societies.—Organization of the Venezuelan Society of Microbiology, Parasitology and Tropical Medicine in Caracas was recently reported. Dr. A. L. Briceno Rossi was elected secretary for bacteriology and Dr. David R. Iriarte secretary for parasitology and tropical pathology.—The recently organized Venezuelan Urological Association has elected the following physicians to be corresponding members: Drs. Hugh H. Young, Baltimore; William F. Braasch, Rochester, Minn.; Terry M. Townsend, Oswald S. Lowsley and J. Bentley Squier, New York.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 11, 1941.

Planning Committee Appointed by the British Medical Association

A medical planning committee has been appointed by the British Medical Association to study wartime developments and their effects on the country's medical services, both present and future. It will consist of sixty-eight physicians representing all branches of the profession under the presidency of Col. Thomas Fraser, consulting physician to the Aberdeen Royal Infirmary. The commission will meet from time to time to debate large questions of principle. The detailed work will be undertaken in committees and subcommittees, whose recommendations will come for discussion before the commission itself. It is believed that any disadvantage which may be due to the size of the commission will be more than offset by the advantage of its fully representative character. Commenting on the project, the *British Medical Journal* states that the commission has a great opportunity and an equally great responsibility. It has among its members men of all shades of medical experience. "War has thrown into sharp relief the deficiencies of our peacetime system of administering relief to the sick and of promoting and maintaining the health of the people. The British Medical Association now proposes to prepare for the return of peace so that medicine may be ready to meet its responsibilities in a world in which many values will be changed, fresh conceptions of society will be formed, and in which new stresses and strains will appear in the moral, material and economic fabric of the democracy we hold to be our rightful heritage."

The Bread Controversy

Bread used to be made from wholemeal flour, which, even when most refined, contained most of the germ and much finely ground bran. But about the middle of the nineteenth century stone grinders gave place to steel rollers, which removed the whole of the germ and practically all the bran. The white bread produced was regarded as a more refined article and became popular. The craze for whiteness was still not satisfied. The pale cream color, due to traces of the natural yellow pigment, one of which is carotene, the precursor of vitamin A, was removed by bleaching, which destroyed all the carotene. Other detrimental effects were loss of vitamins A and B and of minerals (calcium, phosphorus and iron). But the use of this degraded flour became general, and only in recent years has much attention been paid to the loss. Indeed, there are still dietitians who do not regard it as important, saying that it can be made good by other foods. This is no doubt true for persons who can obtain a liberal diet. In the case of others, ill effects are not easy to trace in our complex civilized life. However, in their recent important book "The Englishman's Food," Prof. J. C. Drummond and Anne Wilbraham give as results chronic diseases of the stomach and intestine and the appallingly prevalent dental caries. The production of caries in natives who previously had excellent teeth on abandoning their natural unrefined food for a civilized diet, of which the most important item is white flour, is well attested.

London Hospitals Carry on During Air Raids

The London hospitals have now received much damage from air raids, but their work has gone on. In a recent raid seven hospitals were damaged. These included a large general hospital and a hospital for women. Six wards of one hospital were wrecked when four bombs struck the building, causing the death from shock of some elderly patients. At another hospital

two blocks were completely wrecked and four porters were buried in the ruins. One was quickly rescued, but the others were still trapped at the time of the report. Many hospitals have had their roofs ripped off, their windows shattered and their walls reduced to a pile of rubble. One hospital endured four direct hits on four successive nights. But despite the worst the raiders can do the hospitals carry on. Thus at a well known hospital the medical superintendent, the medical staff, the matron and the nurses all showed unflinching bravery through a grueling seven hour ordeal. Their calm comment when the "all clear" signal was given was "Well we didn't lose a single patient."

Grave Food Scarcity in Belgium

News has been received that during December the scarcity of food in Belgium became acute. The weekly amounts now allowed are only as follows: margarine 1½ ounces, butter 1½ ounces, meat, including 20 per cent bone, 4 ounces, bread 3½ pounds, coffee or coffee substitute 2¼ ounces, rice 1½ ounces, sugar ¾ ounce, honey, jam or syrup less than 4 ounces, potatoes 7½ pounds, oil 1¾ ounces, skimmed milk 6½ pints. But, according to a Belgian newspaper published under German censorship, even these rationed quantities are often unobtainable. The goods of all Belgian clothing and shoe shops have also been severely rationed for some time, even for German soldiers.

Medical Help from America

The government has decided that all requests to the British Red Cross which concern assistance from the United States in providing hospital and medical supplies or in sending to Britain doctors and nurses or complete hospital establishments shall in future be directed solely through the British Red Cross to the American Red Cross. It is felt that this unification will avoid overlapping and insure that American supplies will be regulated according to the urgency of need. It is understood that the American Red Cross is taking steps to cooperate with other American organizations which are helping Britain with gifts of hospital supplies and of medical and surgical equipment. With the American Red Cross they have already made a great contribution, which the British government deeply appreciates.

Consideration for Expectant Mothers in Bombed Areas

Postponement of liability for military service may be granted to a man if his wife resides in a place on which enemy bombs have been dropped causing injury and death, which has adversely affected her nervous system, and she has no relatives or friends in an area not subjected to air raids with whom she could reside. The Ministry of Labor and National Service has announced this decision by the umpire on a husband's application for a postponement certificate.

BUENOS AIRES

(From Our Regular Correspondent)

Nov. 22, 1940.

Control of Preventable Noises

The municipal council of Buenos Aires recently adopted new regulations to control preventable nuisances. With few exceptions, motor vehicles must hereafter be supplied with rubber or pneumatic tires. Drivers of extra-urban vehicles which are not so equipped must secure a permit. This is good for a week of a current month. All vehicles must also be equipped with noiseless exhausts and horns that do not exceed a specified pitch. These may not be sounded between the hours of 1 and 7 a. m. Violation of the regulation is punishable by cancellation of the license for thirty days.

The anti-noise regulation has been extended to apply to the abuse of loud speakers. Great improvement has been noted, for which Argentine automobile clubs are also to be credited.

Previous regulations against noxious gases (THE JOURNAL, April 20, 1940, p. 1570) directed against the use of heavy fuel oil by omnibuses and other public conveyances are now being rigorously enforced.

Argentine Congress of Surgeons

In October the twelfth Argentine Congress of Surgeons met in Buenos Aires under the chairmanship of Prof. Alberto Baraldi of Rosario. There were delegates from Bolivia, Brazil, Chile and Uruguay. Bolivia was represented by Dr. Abelardo Ibañez Benavente, minister of public health. The leading subjects discussed were the treatment of postoperative eventration, cholecystitis and chronic nontuberculous arthropathies of the coxae. Dr. Vicente Gutiérrez distinguished between spontaneous, congenital and traumatic eventration. Spontaneous eventration may be due to excessive or repeated distentions of the abdominal wall or to distentions caused by destructive diseases. Congenital cases are due to aplasia or hypoplasia of the normal elements of the abdominal wall. Traumatic eventration is caused by accidents or occurs postoperatively. He discussed the surgical problems involved and indicated the measures necessary to prevent eventration. These include avoidance as much as possible of surgical intervention at pathologic sites in cachectic, obese and aged subjects. He recommended good drainage at points distant from the surgical wound. Suturing should be done with materials which do not permit absorption and with utilization of the aponeurosis, as indicated by Mayo. The patient should remain in bed for two weeks.

Dr. Ricardo E. Donovan, discussing cholecystitis, pointed out that the pathologic process affecting the wall of the gallbladder is not recessive but progressive. Infections of the gallbladder wall disappear only on extirpation. They recur when the bladder begins to function again. A large number of cases of cholecystitis are associated with parietal infection, which become intensified by irritation due to foreign bodies. The bladder itself is then transformed into a septic foreign body. The symptomatology of cholecystitis often corresponds to that of hepatocellular lesions. Hepatic sensitivity needs to be determined, by means of various tests, in order to avoid hepatic crises and allergic reactions.

Dr. Julio Díez presented the paper on chronic nontuberculous arthropathies of the coxae. In acute early forms of osteochondritis deformans continuous extensions should be employed, which in certain cases would require immobilization by plaster bandages. Surgical methods were still in the tentative stage. Tunnelizing of the epiphysis through the trochanter magnus is now being replaced by multiple tunnelization, which accelerates healing and promptly assuages pain. Traumatic necrosis of the head of the femur can be observed as secondary to traumatic luxation, also as secondary to the reduction of congenital luxation, to epiphysiolysis, to fractures of the femoral neck and to certain surgical acts. An interval of from four to twelve months occurs between the accident and the manifestation of the lesions. In the terminal stage of the disease the head of the femur is partly reconstructed. However, it evolves into arthritis deformans in the course of the years. He pointed out that acetabuloplasty, originated in 1936, did not yield the results that had been expected. Best results are obtained by arthroplastic resection, especially by the reconstructive operation of Whitman. Only in certain forms of the disease is the operation indicated. Molds made of vitallium, announced last year by Smith-Petersen, need to be studied further.

Leading subjects announced for 1941 are traumatic lesions of lateral and crucial ligaments and of the menisci of the knees, hernial relapses and subphrenic abscesses. Subjects for 1942 so far announced are acute pancreatitis and lesions of the thorax.

Number of Physicians and Hospitals in Argentina

In 1939, 11,807 physicians were listed in Argentina. There were 426 hospitals, forty-two of which were national, 114 municipal, fifty provincial, 187 owned by welfare organizations and sixteen belonging to foreign colonies. There were 293 dispensaries, thirteen first aid stations, 873 services of a general sanitary nature and 709 services for venereal treatment. There were 47,371 beds for general diseases, 23,608 beds for special diseases. There were 5,391 physicians and thirty-seven hospitals (four national, nineteen municipal, seven belonging to welfare societies, seven belonging to foreign colonies) in Buenos Aires; likewise twenty-four dispensaries, sixty-one general sanitary services, fifty-six for venereal diseases, 13,217 beds for general use and 4,466 beds for special diseases.

Control of Venereal Diseases in Chile

Dr. Salvador Allende, minister of public health in Chile, recently submitted data in connection with the planning of legislation aiming at venereal control. Though incomplete, they disclose that 10 per cent of Chile's population of 4,600,000 suffer from some form of venereal disease. Of these 460,000 persons, 80 per cent are afflicted with syphilis. Sixty per cent of the 5,000 inmates in hospitals for mental diseases have been confined because of the effects of syphilis. The new legislative bills seek to combine and centralize the control of venereal diseases. The treatments are to be given only by physicians, nurses and other authorized persons. Those refusing to be treated are subject to confinement. Persistent resistance to medication must be reported by the physician. Drugs may be furnished only on prescription. The advertising of these drugs is officially controlled. Marriages can be contracted only on presentation of a certificate attesting freedom from venereal disease. Special provisions deal with penalties of those who spread infection. Persons infecting others must defray the expenses of their treatment. For purposes of coordinating the various antiveneral services conducted by the state, by public welfare associations and so on, a special organization has been created, the Consejo técnico de lucha antivenérea.

Marriages

NORMAN LEO CRESSY, Beverly, Mass., to Miss Harriet Lillian Northrop of Pleasantville, N. Y., in New Haven, Conn., Dec. 12, 1940.

GERALD WINBERRY SINNOTT, Tarrytown, N. Y., to Miss Roberta Lillian Glenn of Scarsdale, Nov. 30, 1940.

NORMAN G. SCHNEEBERG, Philadelphia, to Miss Helen C. Bassen of St. John, N. B., Canada, Nov. 3, 1940.

MAULDIN J. BOGGS JR., Liberty, S. C., to Miss Mary Wiley Balentine in East Point, Ga., Nov. 28, 1940.

LEWIS McCURDY JONES, Opelika, Ala., to Miss Ouida Etheridge Fort of Tuskegee, Dec. 10, 1940.

COLIN ALEXANDER MUNROE to Miss Frances Foreman Crum, both of Durham, N. C., Dec. 7, 1940.

JOHN BURMAN BOWEN, Augusta, Ga., to Miss Anna Furgueron of McCormick, S. C., Dec. 19, 1940.

ROBERT M. OLIVER JR. to Miss Elizabeth Baker Gardner, both of Miami, Fla., Nov. 14, 1940.

CHARLES RAYMOND ARP to Miss Coribel Mason, both of Atlanta, Ga., Nov. 30, 1940.

JOHN E. SUTTON JR., to Miss Mary Louise Boomer, both of New York, Dec. 21, 1940.

IRVING HELFERT, New York, to Miss Sylvia O. Dinhofer of Brooklyn, Dec. 14, 1940.

MICOLLUS NOEL STOW, Jesup, Ga., to Miss L. Pauline Snyder of Atlanta, Nov. 16, 1940.

CLYDE L. WELSH to Miss Vivian Henger, both of Seattle, Nov. 1, 1940.

FRED A. BUTLER to Miss Betty Lindsey, both of Quincy, Fla., Dec. 7, 1940.

Deaths

Sir Frederick Grant Banting, Toronto, Ont., Canada, co-discoverer of insulin and co-winner of the Nobel Prize in medicine in 1923, was killed, February 21, in an airplane accident near Musgrave Harbor on Newfoundland's east coast on his way to England. Dr. Banting was born in Alliston, Ont., Nov. 14, 1892, and graduated from the University of Toronto Faculty of Medicine in 1916. During the year 1920-1921 he was affiliated with the Western University Faculty of Medicine, London, Ont., as part time assistant in the department of physiology. While there he conceived the idea of preparing an active extract of the islets of Langerhans. In 1921 he began research on this problem in the department of physiology at the University of Toronto, in which department were Drs. J. J. R. MacLeod, director, and Charles H. Best and James B. Collip, research assistants, all of whom were closely associated in the early work on insulin. Sir Frederick was a lecturer on pharmacology at Toronto in 1921-1922 and senior demonstrator in medicine in 1922-1923. Since 1923 he has been professor of medical research in the Banting and Best Department of Medical Research, a chair which was established by the University of Toronto in recognition of his work on insulin. It was proposed in 1923 that a \$1,000,000 Banting Medical Research Foundation be established. Dr. Banting was the first contributor to the fund, donating \$10,000, a portion of his share of the Nobel Prize. In 1930 the Banting Institute was opened; the cost of the building was contributed by the provincial government, the university and the Banting Research Foundation, which raised funds by popular subscription. Dr. Banting was honorary consulting physician at the Toronto General and Toronto Western hospitals.

In 1922 he was awarded the Starr Gold Medal and the George Armstrong Peters Prize and in 1923 the Charles Mickle Fellowship and the Reeve Prize, all of the University of Toronto. In 1923 he shared the Nobel Prize with Dr. J. J. R. MacLeod. This they divided with Drs. Best and Collip. In the same year he was awarded the John Scott Medal by the city of Philadelphia and received a life annuity of \$7,500 from the parliament of Canada; in 1924 he was awarded the Rosenberger Gold Medal by the University of Chicago; in 1927 the Cameron Prize by the University of Edinburgh; in 1931 the Flavelle Medal by the Royal Society of Canada; in 1934 the Apothecaries' Medal of London; in 1936 the F. N. G. Starr Gold Medal by the Canadian Medical Association.

Dr. Banting was knighted a Commander of the Civil Division of the Order of the British Empire in 1934. He was a licentiate of the Royal College of Physicians, member of the Royal College of Surgeons, fellow of the American College of Physicians, fellow of the Royal College of Surgeons of England, fellow of the Royal College of Surgeons of London, fellow of the Royal College of Surgeons of Canada, fellow of the Royal Society and fellow of the Royal College of Physicians. He was an honorary fellow of the Academy of Medicine of Toronto and of the New York Academy of Medicine; honorary member of the Norwegian Medical Society in Oslo; foreign correspondent, Académie royale de médecine de Belgique; La Società medico-chirurgia de Bologna; corresponding member of the Royal Medical Society of Budapest; member of the Canadian Medical Association, American Society for Pharmacology and Experimental Therapeutics, British Physiological Society, Association of American Physicians, Canadian Chemical Association, American Association for Cancer Research and the Imperial German Academy of Natural Sciences.

For three years during the World War, Dr. Banting served with the Canadian Army Medical Corps, and he was again

serving as a major in the medical corps of the Canadian Army at the time of his death. In 1918 he was awarded the Military Cross. He held honorary degrees from the University of Toronto, Queen's University, University of Western Ontario, Yale University and the University of the State of New York. At the very moment of his death he was en route to England to convey, it is reported, the results of recent research with military significance.

William Niles Wishard Sr., ☉ professor emeritus of genitourinary surgery at the Indiana University School of Medicine, died, January 22, at his home in Indianapolis of coronary infarct and acute endocarditis at the age of 89. Dr. Wishard was born in Greenwood, Ind., Oct. 10, 1851. He graduated from the Indiana Medical College in 1874 and in 1876 from the Miami Medical College, Cincinnati, which later became what is now known as the University of Cincinnati College of Medicine. He became a deputy coroner of Marion County in 1876 and served until 1879. From 1887 to 1936 he was professor and chairman of the department of genitourinary surgery, which department he founded and served for forty-nine years, at the Indiana University School of Medicine. In 1894 he was president of the

Marion County Medical Society, in 1895 president of the Mississippi Valley Medical Association and in 1905 president of the American Urological Association. In 1898 he was president of the Indiana State Medical Association and served in various capacities, holding the chairmanship of the council from 1903 to 1913. As chairman of the committee on public policy and legislation from 1896 to 1922, he wrote the medical practice act and worked for its enactment. Since 1922 he had been chairman of the bureau of publicity of the association. He was First Vice President of the American Medical Association, 1918-1919, and a member of its House of Delegates from 1902 to 1910. He was a member of the state board of health from 1900 to 1911 and president in the latter year. Dr. Wishard was a member of the American Association of Genito-Urinary Surgeons and a fellow of the American College of Surgeons. He was a charter member of the American Board of Urology and a member of the French Urologic Society. From 1879 to 1887 he was superintendent of the Indianapolis City Hospital; and attending genitourinary surgeon, from 1887 to 1915; attending genitourinary surgeon at St. Vincent's Hospital from 1895 to 1915, the Deaconess Hospital from 1892 to 1912 and the Methodist Hospital from 1912 to



FREDERICK GRANT BANTING, M.D.
1892-1941

1941. From 1890 to 1893 he was Surgeon General of Indiana with the rank of lieutenant colonel. Honorary degrees were conferred on him by Wabash College in 1890, College of Wooster in 1919, Indiana University in 1924, De Pauw University in 1928 and Hanover in 1933.

Paul Brandon Barringer, Charlottesville, Va.; University of Virginia Department of Medicine, Charlottesville, 1877; University of the City of New York Medical Department, New York, 1878; member and past president of the Medical Society of Virginia; formerly member of the state board of health and of the state board of agriculture; formerly professor of physiology and materia medica and chairman of the faculty of the University of Virginia; was president of the Virginia Polytechnic Institute; at one time in charge of the University of Virginia Hospital; aged 83; died, January 9, of a cerebrovascular accident and arteriosclerosis.

James Packard Mann, Philadelphia; Jefferson Medical College of Philadelphia, 1887; member of the Medical Society of the State of Pennsylvania; clinical professor of orthopedics, Medico-Chirurgical College of Philadelphia, from 1890 to 1907, professor of orthopedics from 1907 to 1917; professor of orthopedics at the Graduate School of the University of Pennsylvania from 1917 to 1919; for many years on the staff of the Phila-

delpia General Hospital and St. Agnes Hospital; aged 77; died, Dec. 29, 1940, of coronary thrombosis.

Charles Louis Janssen ☉ New York; Université Libre de Bruxelles Faculté de Médecine, Belgium, 1911; assistant professor of clinical surgery, Columbia University College of Physicians and Surgeons; associate attending surgeon, Presbyterian Hospital and Vanderbilt Clinic; served with the Belgian ambulance service during the World War; fellow of the American College of Surgeons; aged 54; died, January 22, in the Harkness Pavilion, Columbia-Presbyterian Medical Center, of carcinoma of the lung with metastases.

Charles Edwards Parsons, Boston; Johns Hopkins University School of Medicine, Baltimore, 1919; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; at one time on the courtesy staff of the Benedictine Hospital and Kingston Hospital, Kingston, N. Y., and on the staff of the New York Hospital, New York; superintendent of the Washingtonian Hospital; aged 48; was found dead, Dec. 31, 1940, in a hotel at Philadelphia of coronary thrombosis.

Louis C. Boisliniere ☉ St. Louis; St. Louis Medical College, 1882; an Affiliate Fellow of the American Medical Association; member of the American College of Chest Physicians; instructor in medicine, St. Louis University School of Medicine from 1909 to 1911, assistant professor from 1911 to 1926 and since 1926 associate professor of internal medicine; chief of staff, Mount St. Rose Sanitarium, since 1908; physician, St. Mary's Group of Hospitals; aged 79; died, January 11, of laryngeal carcinoma.

Sibley Gage Morrill, Concord, N. H.; Harvard Medical School, Boston, 1898; member of the New Hampshire Medical Society; member of the state board of health from 1917 to 1931; was president of the staff of the Margaret Pillsbury General Hospital; consultant at the New Hampshire Memorial Hospital, Concord, and the Pembroke Sanatorium, Pembroke; aged 67; died, Dec. 29, 1940, of bronchopneumonia, syringomyelia and spastic paraplegia.

Charles Leo Moran ☉ Passed Assistant Surgeon, Lieutenant Commander, United States Navy, retired, Boston; Harvard Medical School, Boston, 1905; entered the medical corps of the navy on Feb. 10, 1908; served during the World War and was awarded the Victory Medal; was retired for physical disability on Dec. 31, 1918; aged 61; died, Nov. 15, 1940, of chronic myocarditis.

Frederick Augustus Rhodes, Culver City, Calif.; Western Pennsylvania Medical College, Pittsburgh, 1900; member of the American Psychiatric Association; professor of physiology at his alma mater from 1905 to 1910; author of "Applied Physiology"; aged 67; died, Dec. 29, 1940, of hypertensive cardiorenal vascular disease.

Alois Lawrence Ziliak ☉ Princeton, Ind.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898; fellow of the American College of Surgeons; on the staff of the Methodist Episcopal Hospital; aged 67; died in December 1940 in Bay City, Mich., of cerebral hemorrhage.

William Austin Tripp, Easley, S. C.; Atlanta (Ga.) Medical College, 1894; member of the South Carolina Medical Association; chairman of the board of trustees of the Medical College of the State of South Carolina, Charleston; aged 74; died, Dec. 21, 1940, of coronary thrombosis.

James Erwin Reed, Baguio, Philippine Islands; Cornell University Medical College, New York, 1906; member of the Philippine Medical Association; served during the World War; aged 58; died, Nov. 24, 1940, in San Diego of carcinoma of the colon.

Richard A. Anderson, Vincennes, Ind.; St. Louis University School of Medicine, 1906; served during the World War; on the staff of the Good Samaritan Hospital; aged 60; died, January 22, of coronary occlusion.

Herbert Kent Porter, Escondido, Calif.; Miami Medical College, Cincinnati, 1888; College of Physicians and Surgeons, medical department of Columbia College, New York, 1889; aged 73; died, Nov. 17, 1940.

Welcome Niles Powell, San Francisco; Jefferson Medical College of Philadelphia, 1882; veteran of the Spanish-American and World wars; aged 79; died, Dec. 24, 1940, in the Dante Hospital of pneumonia.

Rosario J. Page, Fort Kent, Maine; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1902; aged 60; died, Dec. 22, 1940, of coronary thrombosis.

John Arthur Peters, Springfield, Neb., Omaha Medical College, 1902; served during the World War; aged 67; died, Dec. 15, 1940, in a hospital at Omaha of bronchopneumonia and cerebral thrombosis.

Fred Gullette, Portland, Ore.; University of Oregon Medical School, Portland, 1895; member of the Oregon State Medical Society; served during the World War; aged 68; died, Dec. 22, 1940, of pneumonia.

Allan Carithers Banner ☉ Greensboro, N. C.; Jefferson Medical College of Philadelphia, 1920; fellow of the American College of Surgeons; aged 44; died, January 11, of coronary thrombosis.

Henry Middleton Pittman ☉ Perryville, Ky.; Hospital College of Medicine, Louisville, 1894; aged 73; died, Dec. 16, 1940, of pulmonary edema and chronic myocarditis.

Aaron Friedman ☉ San Francisco; University of California Medical School, San Francisco, 1915; aged 50; died, Nov. 29, 1940, in the Dante Hospital of coronary occlusion.

Thomas Moore Pinson, Kerrville, Texas; Arkansas Industrial University Medical Department, Little Rock, 1880; aged 82; died, Dec. 2, 1940, of heart block.

Frank Halstead Brown, Roselle Park, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1902; aged 60; died, January 18, of pneumonia.

Takeo Yanagawa, El Paso, Texas; Japan Medical College, Hongo, Tokyo, Japan, 1912; aged 49; died, Dec. 21, 1940, in Chiba, Japan, of heart disease.

George William Miser, Des Moines, Iowa; Chicago Homeopathic Medical College, 1898; aged 68; died, Nov. 1, 1940, in Knoxville of uremia.

Newell Patterson, East St. Louis, Ill.; Medical College of Ohio, Cincinnati, 1870; Civil War veteran; aged 102; died, Dec. 30, 1940, of pneumonia.

Perry W. Weeks, Livingston, Texas; College of Physicians and Surgeons, Dallas, 1907; aged 62; was found dead, Dec. 24, 1940, of asphyxiation.

Edgar Arthur Way, Deer Park, Wash.; Bellevue Hospital Medical College, New York, 1896; aged 70; died, Dec. 20, 1940, of heart disease.

Robert E. Aymett, Pisgah, Tenn.; Hospital College of Medicine, Louisville, Ky., 1880; aged 83; died, Dec. 28, 1940, of pneumonia.

Mary Evangeline Gaffney, Boston; Tufts College Medical School, Boston, 1907; aged 66; died, Dec. 5, 1940, of aortic regurgitation.

John Atcherley, Honolulu, Hawaii; L.R.C.P., London and M.R.C.S., England, 1892; aged 75; died, Nov. 20, 1940, of chronic myocarditis.

Anna Grover Kaufman, Goshen, Ind.; American Medical College, St. Louis, 1890; aged 82; died, Dec. 8, 1940, of chronic myocarditis.

Charles M. Moore, Clifton, Texas; Louisville (Ky.) Medical College, 1894; aged 74; died, Dec. 4, 1940, of coronary thrombosis.

Harriette Emilie Cady, New York; Eclectic Medical College of the City of New York, 1872; aged 92; died, January 3, of senility.

Harry Alden Adams, Indianapolis; Chicago Homeopathic Medical College, 1895; aged 70; died, January 19, of coronary occlusion.

John C. Ash, La Harpe, Ill.; Rush Medical College, Chicago, 1899; aged 72; died, Dec. 29, 1940, of arteriosclerosis and nephritis.

William A. Byal, Findlay, Ohio; Columbus Medical College, 1878; also a lawyer; aged 90; died, January 5, of arteriosclerosis.

Richard William O'Bannon, Hollister, Calif.; St. Louis College of Physicians and Surgeons, 1890; aged 71; died, Nov. 27, 1940.

Charles Edward Harris, Los Angeles; Louisville (Ky.) Medical College, 1897; aged 64; died, Dec. 24, 1940, of myocarditis.

Christopher C. Risher, Laurel, Miss.; Mississippi Medical College, Meridian, 1910; aged 56; died, Dec. 28, 1940, of heart disease.

Henry Lincoln L. Parish, Calistoga, Calif.; Cooper Medical College, San Francisco, 1890; aged 75; died, Nov. 12, 1940.

Charles Larkin Wright, Los Angeles; Iowa Medical College, Des Moines, 1885; aged 76; died, Nov. 1, 1940.

Correspondence

SCLERODERMA

To the Editor:—In *THE JOURNAL*, February 8, there appeared the report of a case of scleroderma with pulmonary fibrosis by Drs. Murphy, Krainin and Gerson of New York in which they draw attention to the fact that the pathologic changes in scleroderma are not confined to the skin and subcutaneous tissue alone but may involve the connective tissue system throughout the entire body. Their case presented pulmonary fibrosis or sclerosis as a clinical manifestation of the disease.

The authors state that "a search of the literature of scleroderma has brought to light no other case in which the pulmonary manifestations of the disease were visualized by roentgenographic study." However, in the *New England Journal of Medicine* (216:188 [Jan. 28] 1937) Dr. Harry Linenthal of Boston reported two cases in which pulmonary fibrosis occurred associated with Raynaud's disease and scleroderma. Dr. Linenthal concluded that changes in the pulmonary arterial tree with fibrotic changes in the lung may occur in this disease and are clinically demonstrable.

ROBERT TALKOV, M.D., Boston.

ABBREVIATION AND MEANINGLESS DICTION IN MEDICINE

To the Editor:—I cannot resist the impulse to endorse the views expressed by Dr. Ramsay Spillman in *THE JOURNAL* of January 18. He is confused by perplexing abbreviations and meaningless diction employed in his own specialty, and I am sure many of us in all departments of medicine could furnish samples of the same sort.

Medical terminology in the United States (and probably elsewhere) is in a woful state. Scores of words and expressions and their short-cut forms in common use not only violate the principles of philology and defy their derivations but also confound scientific precision and offend one's sense of accuracy. It is just as easy to be right as to be wrong, and much more becoming.

The most flagrant example of twisted derivation is the use of "clinic" as applied to a place for the reception and examination of patients, formerly called a dispensary or outpatient department. The word "klinē" in Greek means a bed. Today clinic means a place where there are no beds. This appellation was initiated by certain illustrious members of the medical profession whose common sense was profound but whose philologic knowledge was murky. No wonder lesser lights followed suit.

I am not one of those who believe that usage is the only, or even the best, basis on which language should be built. Several solecisms come to mind. When one says "the patient has no temperature" then, of course, he is dead. When the doctor (or the nurse) reports that "the pulse are 120," who shall correct him? A surgeon coming down in the elevator, on being asked what he had done that day, replied "I just had an appendix." One wonders who had it and who took it out. As for such terms as "acute ab'-domen" (wrong both in concept and in accent), "traumatic injuries" (terrible tautology, literally "injuries due to injury") and "operated a case" (the cognate accusative applied to a nonperceptible entity)—as for these vulgarisms, let us purge them from our nomenclature.

Fourteen years ago (*THE JOURNAL*, Feb. 29, 1927) I suggested, by way of addition instead of subtraction, the substitution of "internalist" for "internist"; but I have had not one

responsive nibble. I still think that the former term would express more clearly the practitioner of internal medicine, while the latter is too closely allied to the word "intern."

Some of us continue to hammer away, but apparently our knocks make few dents. If constant crusading in the interest of a more exact medical vocabulary indicts me as a persistent purist, I plead guilty.

Always I have loved Victor Hugo for this: "An idea is a baln; a word may be a dressing for wounds."

HUBERT A. ROYSTER, M.D., Raleigh, N. C.

PREVENTIVE MEDICINE FOR THE TRAVELER

To the Editor:—The wayfarer of old encountered many seen and unseen dangers as he wandered about the country, not the least of which were opportunities to acquire contagious diseases and infections. The factors of fatigue, exposure to cold and dampness and lack of knowledge and facilities for hygiene enhanced his opportunity of acquiring illness when traveling.

The modern traveler probably considers himself adequately protected from these hazards of travel, but is he actually protected? A recent journey, chiefly in coaches on five large railroads having terminals in Chicago, revealed a number of hazards still awaiting the traveler, not the least of which was the current epidemic of coryza and "influenza." Confinement in a railway coach with passengers, old and young, who apparently know no better than to cough and sneeze frequently at their fellow travelers is no minor hazard. The inadequacy of present attempts to teach others, through the medium of the printed page and the radio, to cover the nose and mouth with a handkerchief when coughing and sneezing was apparent everywhere. Would it therefore not be more effective if each person who wished to protect himself from the dangers of acquiring respiratory infections made it his policy on encountering the careless sneezer or cougher to place over his own nose and mouth a gauze mask such as physicians and nurses wear to protect their patients? The psychologic jolt that most persons would experience under such circumstances would be more effective than any other means of teaching hygiene, or even than an ordinance forbidding careless coughing. It has been pointed out how reluctant one would be to cough carelessly if the droplets of infected mucus were colored a vivid purple, in which case it would be only too apparent that our hands, our faces, our handkerchiefs, our clothes, our cordial handshakes and everything we touched became tinged with purple and indicated infection. That this droplet infection is actually not purple makes it no less real and dangerous.

The danger of acquiring an infection of the respiratory tract when one is traveling on trains is enhanced by drafts and by overheating or underheating of coaches. By means of thermostats and swinging inner vestibule doors, drafts and excessive changes of temperature were minimized on two of the trains.

Cleanliness of the toilets and washrooms provided for coach passengers for the most part suffered greatly when compared with that of the modern filling station rest room. One railroad inexcusably did not furnish either soap or towels in its wash room except as one purchased them from a nickel slot machine!

Another hazard of travel encountered on this brief journey was the vicious cold of the dining car steward who alternately blew his nose in his handkerchief and coughed over the dining passengers while resetting tables with plates, napkins and silverware. Only for the sake of completeness do I mention

the busy chef at the small lunch counter on one of the trains whose forte was dipping his fingers into the heating vegetables, as one might use a finger bowl, apparently to test whether the temperature was just right for the next diner.

LOUIS E. PRICKMAN, M.D., Rochester, Minn.

Medical Examinations and Licensure

COMING EXAMINATIONS

BOARDS OF MEDICAL EXAMINERS BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in *THE JOURNAL*, March 1, page 891.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various centers, June 23-25. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: Oral. Part II, Cleveland, May 31-June 1. Final date for filing application is April 1. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF INTERNAL MEDICINE: Oral. April, in advance of the meeting of the American College of Physicians, and June, in advance of the meeting of the American Medical Association. *Written*, Oct. 20. Final date for filing application is Sept. 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Oral. Philadelphia, June 6-7. Sec., Dr. R. Glen Spurling, 404 Brown Bldg., Louisville, Ky.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Part II, Groups A and B, Cleveland, May 28-June 1. Final date for filing application is March 15. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Oral. Cleveland, May or June. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF PATHOLOGY: Oral and *Written*. Cleveland, June 2-3. Final date for filing application is May 1. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: Chicago, May 18, following the Region III meeting of the American Academy of Pediatrics. Boston, Oct. 12, immediately following the annual meeting of the American Academy of Pediatrics. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF RADIOLOGY. Oral. Cleveland, May 30-June 1. Final date for filing application is April 15. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written*. Part I. Various centers, April 2. Sec., Dr. J. Stewart Rodman, 225 South Fifteenth St., Philadelphia.

Nebraska November Report

Mrs. Clark Perkins, director, Bureau of Examining Boards, reports the written examination for medical licensure held at Lincoln, Nov. 7-9, 1940. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. Five physicians were licensed to practice medicine by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Creighton University School of Medicine.....		(1940)	1
University of Nebraska College of Medicine.....		(1937)	1
School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists.....		(1939)	California
University of Kansas School of Medicine.....		(1932)	Kansas
University of Minnesota Medical School.....		(1930)	Minnesota
Columbia Univ. College of Physicians and Surgeons.....		(1935)	New York
Western Reserve University School of Medicine.....		(1925)	W. Virginia

Rhode Island October Report

Dr. Robert M. Lord, secretary, Division of Examiners, reports the oral, written and practical examination for medical licensure held at Providence, Oct. 3-4, 1940. The examination covered 8 subjects and included 50 questions. An average of 80 per cent was required to pass. Two candidates were examined, both of whom passed. Two physicians were licensed to practice medicine by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Cornell University Medical College.....		(1939)	87
University of Oregon Medical School.....		(1935)	88
School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Georgetown University School of Medicine.....		(1938)	N. B. M. Ex.
Tufts College Medical School.....		(1935)	N. B. M. Ex.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Roentgen Therapy for Pelvic Tumor Allegedly Incorrectly Diagnosed as Malignant; Necessity for Expert Testimony.—About six months after giving birth to a child, the plaintiff, accompanied by her attending physician and her mother, consulted the defendant physician for diagnosis and treatment of an abdominal condition. On Sept. 7, 1936 the defendant performed an operation on the plaintiff's abdomen but was unable to remove the pelvic mass which he found. At the time of the operation he took specimens of the tumor mass for biopsy and on the basis of his operative findings and the laboratory report of microscopic examinations of the tissue he diagnosed the plaintiff's condition as a malignant tumor, and so he caused roentgen ray treatments to be administered. Peritonitis developed necessitating the performance of two operations by other physicians, the last operation being performed in January 1937 to relieve a serious bowel condition, apparently an intestinal obstruction. Subsequent to her discharge from the hospital for this last operation she consulted two osteopaths. She later sued the defendant physician for malpractice, alleging that he had not used approved methods in diagnosing her condition, had incorrectly diagnosed her condition as a malignant growth or sarcoma and had improperly caused roentgen ray treatments to be administered to her, and that as a result of his negligence she had sustained great impairment of health and permanent physical injury. From a judgment of the trial court overruling the defendant's demurrer and overruling his motion for a directed verdict in his favor, the defendant appealed to the Supreme Court of Kansas.

According to the testimony of the plaintiff, she and her attending physician informed the defendant that she had been running an elevated temperature, had been having continuous pain in her left side for about three weeks and had nausea and vomiting. She testified that the defendant did not take her temperature or her blood pressure but did take her pulse and examined her abdomen, both internally through the vagina and externally, which examination revealed the presence in her pelvis of a tumor mass about the size of a small grapefruit. The plaintiff's mother testified that the defendant did not make a blood count or take roentgenograms. She further testified that prior to the first operation he informed her that he believed her daughter had a "tumor on the ovary"; that after the operation he told her that her daughter had a sarcoma and had but a few months to live; that three days later he informed her that he still believed the plaintiff had such a malignant tumor even though the laboratory report of the microscopic examinations did not positively show a sarcoma; that roentgen ray treatments would have to be administered in order to retard the growth, and that he assured her daughter that such treatment would have no effect on her ability to bear children. According to the mother's testimony, shortly after the first operation the defendant ceased to treat the plaintiff personally but placed her under the care of other physicians whom he recommended and apparently instructed as to treatment. She claimed that he did not withdraw from the case until March 1937. The record of the hospital at which the defendant operated on the plaintiff was introduced in evidence and showed that the defendant's preoperative diagnosis had been "tubo-ovarian abscess" and his postoperative diagnosis: "Retroperitoneal sarcoma. Adhesions to iliac vessels, ureter, etc., are so dense as to make removal impossible." The report of Dr. Hellwig, the physician who microscopically examined the biopsy specimens, was also introduced in evidence, in which he gave as his pathologic diagnosis "cellular neurofibroma." An osteopath, who described himself as a specialist in roentgenologic diagnosis and in radiology and claimed that the "authoritative technic in the use of X-ray in the Allopathic and the Osteopathic schools are the same," testified that roentgenograms taken on March 8, 1937, about six months after the first operation and subsequent to the roentgen ray

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

10:853-900 (Dec.) 1940

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Influence of Icteric Serums with High Phosphatase Activity on Phosphatase Activity of Normal Serums. A. Cantarow, Philadelphia.—p. 858.
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American J. Digestive Diseases, Huntington, Ind.

7:513-542 (Dec.) 1940

- Inhibition of Gastric Secretion in Man with Urogastone. J. S. Gray, E. Wiczorowski and A. C. Ivy, Chicago.—p. 513.
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New Nasal Duodenal Tube. D. Macdonald, St. Catharines, Ont.—p. 537.
Biopsy Forceps for Flexible Gastroscope. B. Kenamore, St. Louis.—p. 539.

American Journal of Diseases of Children, Chicago

61:1-212 (Jan.) 1941

- *Resuscitation of Asphyxiated Newborn Infant. J. D. Russ and R. A. Strong, New Orleans.—p. 1.
Epiphyseal Dysgenesis Associated with Hypothyroidism. L. Wilkins, Baltimore.—p. 13.
*Toxic Factor in Stools of Patients Ill with Poliomyelitis. J. A. Toomey and W. S. Takacs, Cleveland.—p. 35.
Evidence of Monozygosity and Disturbance of Growth in Twins with Pyloric Stenosis. Norma Ford, A. Brown, Toronto, Canada, and J. F. McCrery, Boston.—p. 41.
*Ameliasia in Infants and Children. Katharine M. Howell and Elta W. Knoll, Chicago.—p. 54.
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Causes of Prematurity: II. Comparison of Maternal Histories of Premature and of Full Term Infants. Nina A. Anderson, Estelle W. Brown and R. A. Lyon, Cincinnati.—p. 72.
*Intradermal Immunization: I. Scarlet Fever. S. Fisher and D. W. Van Gelder, Normal, Ill.—p. 88.
Guillain-Barré Syndrome in Children: Review of Literature and Report of Three Additional Cases. L. Casamajor, New York, and G. R. Alpert, Boston.—p. 99.
Normal Blood Sugar Values in Children. C. L. Rudesill and R. A. Henderson, Indianapolis.—p. 108.
Congenital Intestinal Obstruction, with Special Reference to Value of Plain Roentgenogram for Diagnosis. P. Cohen, New York.—p. 135.

Resuscitation of Asphyxiated Newborn Infants.—Russ and Strong review the various resuscitation methods for asphyxiated infants and incorporate the best part of each into a routine which is easy to apply and does not require an expert for its performance. Certain antepartum and delivery features that contribute to the asphyxia must be known. Some of the ante-

partum factors that have a considerable effect on asphyxia are toxemias of pregnancy, heart disease with congestive failure, anemias and the causes of premature delivery. Antepartum analgesia, anesthesia, type of delivery and labor have a bearing as well. Of one thousand two hundred newborn infants resuscitation of one hundred and ninety-six was necessary. This did not include infants who breathed spontaneously and maintained respiration thereafter. The routine adopted was as follows: A table 3 feet wide and 4 feet long, with a 4 inch protective edge, covered with a sterile sheet and warmed blankets, is always in readiness. On it are sterile towels, an intratracheal catheter with a glass saliva trap, hypodermic syringes containing $\frac{1}{20}$ grain (3 mg.) of alpha lobeline and 15 minims (1 cc.) of a 25 per cent solution of nikethamide, scissors, cord clamps and dressings. By the side of the table is an Easton and Johnson resuscitator, which is checked daily. The infant is immediately wrapped in the warm cover and the skin is gently but rapidly rubbed for a few seconds. The fingers of the pediatrician's left hand are placed beneath the neck of the child, and the head is hyperextended. The nostrils, mouth, pharynx and nasopharynx are aspirated of mucus, amniotic fluid, blood or meconium. The warmth, cutaneous friction and aspiration are usually sufficient to initiate respiration in mildly asphyxiated infants. If respiration does start, plain oxygen is administered through the face mask until respirations are regular in volume and rate or until the baby cries. If it does not start, alpha lobeline is administered via the umbilical vein, and the trachea and upper bronchi are gently aspirated with the intratracheal catheter until they are clear, and then from five to ten gentle mouth to mouth inspirations and expirations are made, while the amount of expansion is observed. Often the limp pharynx begins to tighten and to show some muscle tone, indicating that respiration will soon start. If respiration has started, as is usual in moderately asphyxiated infants, oxygen is administered by face mask until respiration is normal in volume and rate or until the baby cries. In more severely asphyxiated infants, when respiration will not start, the catheter is withdrawn, the head is again hyperextended and the face mask is adjusted. The mouth must be opened wide while the mask is in place. The alternate pressure and suction mechanism is started; plain oxygen at a rate of thirty to thirty-six cycles per minute is used at first. Nikethamide in doses of 2 minims (0.12 cc.) is administered subcutaneously at intervals of ten minutes until respiration is established; 2 minims of epinephrine is given subcutaneously if the heart beat flags. This is done until spontaneous respiration at a rate of at least eight to ten respirations per minute is attempted by the infant. At this time the pressure suction apparatus is switched to the continuous flow of oxygen at a pressure of 13 mm. of mercury, and 5 per cent carbon dioxide and 95 per cent oxygen is substituted for the pure oxygen. If respiration continues and becomes regular, nikethamide is stopped, the face mask is removed and if any irregularities of respiration occur oxygen is resumed immediately. If, while oxygen is being administered continuously, spontaneous respiration ceases, the alternate pressure and suction mechanism is switched on until spontaneous efforts are resumed. If after two to three hours the heart still beats but spontaneous attempts at respiration are not made, the baby is placed in a Drinker respirator with an oxygen tent over his head. If the baby's heart stops beating, no harm can be done and occasional benefit may be derived by the use of epinephrine intracardially. Of their 196 cases the authors initiated respiration in 76 in less than five minutes, in 46 in from five to ten minutes, in 31 in from ten to fifteen minutes, in 18 within half an hour and among the remaining 25 infants in from thirty minutes to five hours. There were 8 deaths among the series; 3 from intracranial hemorrhage, 3 from atelectasis and 2 because of prematurity. The authors do not advise the use of morphine four hours and pentobarbital sodium six hours prior to delivery. Greater reliance may be placed on other barbiturates. Ether causes definite narcosis in the child but it is easily overcome. Alpha lobeline via the umbilical vein is advised, with nikethamide or metrazol subcutaneously as a respiratory and circulatory aid thereafter.

Toxic Factor in Stools of Patients with Poliomyelitis.—Toomey and Takacs endeavored to determine whether the addition of the toxic factor present in the stools and urines of

patients with poliomyelitis to poliomyelitis virus might sufficiently activate the latter to produce the disease in guinea pigs. Their studies give further support to the theory that the toxic factor is present in stools and that it may be produced as a result of stasis of the intestinal contents or from a combination of this stasis and the virus itself. The experiments suggest that convalescent poliomyelitis serum may have the ability to neutralize not only poliomyelitis virus but also the toxic factor present in the gastrointestinal tract. The fact that the agglutinin titer against enteric organisms rises as the experimental animal with poliomyelitis gets better makes this probable.

Amebiasis in Infants and Children.—Howell and Knoll state that amebiasis is definitely not rare in children. They have encountered several undernourished children with abdominal symptoms simulating appendicitis in which *Endamoeba* was proved to be the etiologic agent and the patients improved promptly after therapy for amebiasis was instituted. Between 1929 to 1940 they encountered 18 children with a diagnosis of amebiasis. Thirteen of these children, among a total of 408, were admitted during 1937, 1938 and 1939 for which complete records were available. This gives an incidence of 3.18 per cent as compared to 5.2 per cent among 1,044 adult patients examined. The stools of the adults and the children were examined by the same workers and therefore the percentages should be comparable. The ages of the 18 children varied from 8 months to 13 years. The first child with amebiasis treated at the Sarah Morris Hospital was admitted in 1929, followed by 1 in 1931, 1 in 1934, 2 in 1936, 5 in 1937, 3 in 1938 and 5 in 1939. Twelve of the children were boys and 6 were girls. This is in accord with the experience of other investigators, who have found a higher incidence of infection among male than female patients. The 18 children were admitted to the hospital with various complaints—"colitis," repeated intestinal upsets, acute abdominal pains, nausea and fever—and others had no gastrointestinal symptoms but were admitted for other reasons. The history and physical examination almost always revealed that the patient had had acute abdominal pain—usually cramplike—nausea, vomiting and intermittent attacks of diarrhea of varying severity. Several of the children had symptoms so typical of acute appendicitis that only the early isolation of active amebas prevented operation. The majority of the children did not appear acutely ill, but they were nervous, anemic and undernourished. Their physical development was retarded, and the mental development of some was below par. The temperatures ranged from 99 to 101 F. The blood picture confirmed the impression of anemia. The leukocyte counts were within normal limits. When the infection was uncomplicated, urinalysis was normal. The stools were typical: dark brown and unformed. In the diarrheal state pus, blood and occasionally mucus appeared. Under treatment the symptoms of amebiasis cleared up quickly in all the children. The first 2 patients were treated with emetine hydrochloride, the others with carbarsone. A few children were admitted to the hospital several times during the eleven years, sometimes with symptoms of amebiasis and sometimes with totally different symptoms. As no child who harbored *Endamoeba histolytica* was discharged before there was marked clinical improvement and successive fecal specimens were negative for all forms of the ameba, and as there was a lapse of time between admissions it seems probable that reinfection occurred, especially as other members of some of the families were ameba carriers. The readmissions suggest that the children had neither a natural immunity to *Endamoeba histolytica* nor an acquired one from their first infection. There were more readmissions among the clinic group than among children under the care of private physicians, indicating that the better standards of health of the latter tended to increase resistance and lessened their chances of coming in contact with the parasites. A survey for amebiasis in a Chicago orphanage disclosed an incidence of 4.8 per cent (5 children) among 105 specimens examined. This percentage bears out the general observation that the incidence of amebiasis in institutionalized groups is higher than in other groups.

Intradermal Immunization for Scarlet Fever.—Fisher and Van Gelder investigated the question of proper dosage for intradermal injection with the view of producing a high per-

centage of negative Dick reactions and reducing the number of injections and the severity of constitutional reactions. Of 120 children with positive Dick reactions given intradermal injections of scarlatinal streptococcus toxin, 60 received 1,600, 3,200 and 8,000, and another 60 received 800, 1,600 and 3,200 skin test doses of the toxin. Constitutional reactions were encountered among the first group, although they were no more severe or frequent than those following the subcutaneous method. Most of the reactions followed the first dose and the children who had the more severe reactions to the initial dose frequently had reactions to the second and third doses. Temperatures ranging from 99 to 103 F. developed twenty-one times, vomiting occurred eighteen times, headache developed thirteen times and a scarlatiniform rash appeared three times. Twenty-nine of the 60 children had some constitutional complaint following at least one injection. None of the reactions were alarming and most of them were minor. All urinalyses were negative after immunization. No abscesses were seen at the site of injection and no tenderness occurred in the regional glands. Six months after immunization 4 children still had positive reactions to the control test material. However, all the Dick tests were read as negative, as the children who showed erythematous reactions to the Dick test toxin had identical reactions to the control test material. Systemic reactions were also encountered among the other 60 children. They were minor and occurred only about half as frequently as those of the first group. The highest percentage of reactions followed the first dose. Headache was complained of eleven times, temperatures between 99 and 102 F. appeared nine times, and emesis occurred nine times. A scarlatiniform rash was seen three times but in no instance persisted for more than twenty-four hours. Thirteen had some constitutional complaint from at least one injection, although only three could be classed as moderately severe. All urine examinations after immunization were negative. No local complications were observed. Six months after immunization all the children had negative reactions to the Dick test, although 2 continued to have positive reactions to the control test. The authors report a case of acute toxic nephritis following subcutaneous injection of scarlatinal streptococcus toxin. They conclude that the optimal dose intradermally is 800, 1,600 and 3,200 skin test doses, administered on the outer aspect of the upper part of the arm at intervals of two and four weeks respectively. Epinephrine should be available whenever the toxin is being administered so as to control anaphylactic reactions. Inoculation with tuberculin protein has no influence on the reaction to the protein of scarlatinal streptococcus toxin.

American Journal of Physiology, Baltimore

131:291-544 (Dec.) 1940. Partial Index

- Effects of Myocardial Ischemia on Fibrillation Threshold: Mechanism of Spontaneous Ventricular Fibrillation Following Coronary Occlusion. C. J. Wiggers, R. Wégria and B. Piñera, Cleveland.—p. 389.
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Effect of Distention on Blood Flow Through Intestine. II. Lawson and J. Chumley, Louisville, Ky.—p. 368.
Dehydrogenase Inactivation in Oxygen Poisoning. D. F. Bohr and J. W. Bean, Ann Arbor, Mich.—p. 388.
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Graded Partial Pancreatectomy. J. T. Kauer and F. Glenn, New York.—p. 437.
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Calcium in Coagulation of Blood. A. J. Quick, Milwaukee.—p. 455.
Effect of Insulin on Nerve Activity. S. H. Bartley and P. Heinbecker, St. Louis.—p. 509.
Rate of Glycogenolysis in Isolated Livers of Several Species of Laboratory Animals. Blanche G. Bobbitt and H. J. Deuel Jr., Los Angeles.—p. 521.
Role of Insulin in Carbohydrate Metabolism. D. R. Drury, with technical assistance of L. Mill and Stella Davison, Los Angeles.—p. 536.

Annals of Otol., Rhin. and Laryngology, St. Louis

49:873-1138 (Dec.) 1940

- Intranasal Vaccine Spray: Its Use in Prophylaxis Against Common Cold. T. E. Walsh, St. Louis.—p. 875.
- Corrective Surgery of Nasal Tip. J. M. Converse, New York.—p. 895.
- Nasal Atresias: Surgical Critique. A. A. Cincilli, New York.—p. 912.
- Anatomic Study of Nasopharynx as Pathway to Infracardoid Portion of Petrous Pyramid. B. R. Burke, Atlanta, Ga.—p. 924.
- Treatment of Chronic Obstructive Rhinitis with Submucosal Injections of Sodium Psylliate. E. A. Thacker, New Orleans.—p. 939.
- Osteoma of Nose and Accessory Sinuses: Report of Cases. W. L. Simpson and R. I. Williams, Memphis, Tenn.—p. 949.
- Black Tongue: Report of Two Cases. L. R. Marshall, Batavia, N. Y.—p. 961.
- Modification of Steven's Rubber Nasal Balloon Pack. W. A. Ford, Sheboygan, Wis.—p. 965.
- Retropharyngeal Lipoma. F. J. Putney and K. E. Fry, Philadelphia.—p. 967.
- Acute Suppurative Otitis Media: Statistical Study of 1,514 Cases, of Which 896 Were Surgical. J. H. Maxwell and D. H. Brownell, Ann Arbor, Mich.—p. 973.
- Pemphigus Localized in Mouth. E. I. Matis, Kaunas, Lithuania.—p. 991.
- Chronic Hoarseness: Report of 300 Consecutive Cases. J. C. Damitz and J. L. Dill, Detroit.—p. 996.
- Role of Oxalic Acid and Certain Related Dicarboxylic Acids in Treatment and Control of Hemorrhage. A. Steinberg, H. I. Segal and H. M. Parris, Philadelphia.—p. 1008.
- Surgical Establishment of Nasal Ventilation. S. N. Parkinson, Oakland, Calif.—p. 1023.

Archives of Dermatology and Syphilology, Chicago

43:1-222 (Jan.) 1941

- Dermatologic Aspects of Tuberous Sclerosis. T. Butterworth, Reading, Pa., and M. Wilson Jr., Spring City, Pa.—p. 1.
- Dark Adaptation in Pityriasis Rubra Pilaris. L. A. Brunsting and C. Sheard, Rochester, Minn.—p. 42.
- *Chromoblastomycosis: New and Important Blastomycosis in North America: Report of Case in Philadelphia. F. D. Weidman and L. H. Rosenthal, Philadelphia.—p. 62.
- High Frequency Current in Treatment of Hypertrichosis. F. L. Karp, New York.—p. 85.
- Röntgen Ray Treatment of Eye: Effect of Fractional Doses in 100 Cases; Preliminary Report. J. W. Jones and H. S. Alden, Atlanta, Ga.—p. 92.
- Treatment of Psoriasis with Photosensitizing Agents: Results with Sulfanilamide. L. Tulipan, New York.—p. 99.
- Cutaneous Sensitization to Arspenamine: Attempts to Induce Anaphylactic State with Different Arspenamines; Its Production with Conjugate Arspenamine Antigen and Incidental Relation Between Anaphylactic and Cutaneous Hypersensitivity. F. E. Cormia, Montreal, Canada.—p. 103.
- Fatal Aplastic Anemia Following Use of Mapharsen: Report of Case. D. Kirkham and M. Perlmutter, Brooklyn.—p. 111.
- Lichen Striatous. F. E. Senear and M. R. Caro, Chicago.—p. 116.
- Lipoid Proteinosis: Report of Case. U. J. Wile, Ann Arbor, Mich., and J. S. Snow, Birmingham, Ala.—p. 134.
- Vitamin D Therapy in Dermatology. C. S. Wright, Philadelphia.—p. 145.

Chromoblastomycosis.—Weidman and Rosenthal call attention to the rapid geographic spread of chromoblastomycosis and discuss its increasing morbid anatomic changes. The known tissue changes had remained almost entirely those of verrucous dermatitis of the legs, but during the last seven years data accumulated from a number of cases show that the dermatologic features of the disease are not uniform and simple. As the range in gross tissue reaction may eventually compare with that of tuberculosis, syphilis and other specific infectious diseases, the possibilities of this disease should be considered when clinically doubtful atypical granulomatous conditions are encountered. Ten years ago da Fonseca and de Arêa Leão collected only 18 cases, 17 of them from Brazil. Now 110 cases are available for analysis: 41 from North America, 58 from South America, 3 from Europe, 2 from Africa, 3 from Asia and 3 from Sumatra and Java. The authors' case is the fifth reported from the continental United States. It was observed in Philadelphia and was due to *Fonsecaea pedrosoi*. There are 2 unreported cases, making the total 7. Chromoblastomycosis is no longer a disease solely of the leg; the face, neck, buttock, hands and forearms can also be involved. The lesions may be simply infiltrative or they may be verrucous, ulcerative and eicitricial. Dermatologists should be prepared to diagnose chromoblastomycosis when verrucous features are absent. They were lacking in 2 of the continental United States cases when observed by the dermatologist. Thus far chromoblastomycosis has not been identified except microscopically, unless possibly in the endemic area in

Brazil. However, there is promise that differential diagnostic features may be established which will suggest chromoblastomycosis on clinical grounds alone. Two items which promise to have value in differential diagnosis are the margins of infiltration, which are sharply and abruptly elevated, perhaps precipitously, and the development of satellite lesions which suggest that they have developed by autoinoculation, i. e. after convection of infectious material over the cutaneous surface. At least two, and possibly six, species of fungi have been claimed to be causative. These species appear in human skin as characteristic large, brown, sclerotic cells. They are so conspicuous and distinctive that microscopic examination easily results in an unqualified diagnosis. An "incrusting" mantle appears around the fungus cells which stains pink in sections. When cultures cannot be secured from pus or scrapings, bits of tissue should be obtained. Colonies in vitro are not inhibited by a 5 per cent solution of formaldehyde U. S. P. Apparently the parasite is a highly resistant one. Particular "species" of chromoblastomycosis fungi do not induce a uniform and invariable lesion. The first line of defense is complete destruction of the lesions by electrocoagulation or excision. Roentgen irradiation may be of some value. Treatment with iodides by mouth is also promising but alone cannot be relied on. The disease is slowly progressive, with periods of quiescence, and lasts up to forty years. A fatality is yet to be recorded, except when complicated by tuberculosis or leishmaniasis.

Arkansas Medical Society Journal, Fort Smith

37:159-182 (Jan.) 1941

- Treatment of Functional Uterine Bleeding. F. Krock, Fort Smith.—p. 159.
- Liver Function in Surgical Diseases. C. A. Rosenbaum, Little Rock.—p. 162.
- Workmen's Compensation in Relation to Medicine. P. A. Deisch, Helena.—p. 169.

Bulletin New York Academy of Medicine, New York

16:721-788 (Dec.) 1940

- Experimental Basis of Chemotherapy in Treatment of Bacterial Infections. E. K. Marshall Jr., Baltimore.—p. 723.
- Clinical Use of Sulfanilamide and Its Derivatives in Treatment and Prophylaxis of Certain Infections. P. H. Long, Baltimore.—p. 732.
- Electrophoretic Analysis and Constitution of Native Fluids. A. Tiselius, Uppsala, Sweden.—p. 751.

Canadian Medical Association Journal, Montreal

44:1-106 (Jan.) 1941

- Regression of Estrogen Induced Mammary Tumors in Female Rats Following Removal of Stimulus. R. L. Noble and J. B. Collip, Montreal.—p. 1.
- New Method of Treatment of Depressed Fracture of Zygomatic Bone. H. Baxter, Montreal.—p. 5.
- Choice of Skin Grafts in Plastic Surgery. J. W. Gerrie, Montreal.—p. 9.
- Congenital Anomalies of Urinary Tract in Children and Infants and Their Relation to Chronic Pyuria. I. H. Erb and Pearl Summerfeldt, Toronto.—p. 14.
- Granulosa and Theca Cell Tumors of Ovary. D. N. Henderson, Toronto.—p. 20.
- Hydronephrosis of Pregnancy. A. Strasberg, Montreal.—p. 24.
- Spontaneous Pulmonic Interstitial and Mediastinal Emphysema in Infant. J. H. Fisher, London, Ont.—p. 27.
- Comparison of Dark Adaptation (Biophotometer) Tests on French and English School Children in a Quebec Community. G. C. L. Goss, Florence A. Farmer and W. D. McFarlane, Ste. Anne de Bellevue, Que.—p. 30.
- Practical Aspects of Allergy. A. T. Henderson, Montreal.—p. 33.
- Treatment of Disproportion. N. D. Frawley, Toronto.—p. 38.
- Present Status of Thymus Gland in Pediatric Practice. E. A. Morgan, Toronto.—p. 41.
- Comparative Value of Various Tuberculin Tests in Children, Medical Students and Nurses-in-Training. H. P. Wright, Montreal.—p. 44.
- Drainage of Tuberculous Cavities by Aspiration (Monaldi Method). A. Joannette, Mont-Joli, Que.—p. 46.
- *Sulfanilamide and Sulfapyridine in Treatment of Acute Laryngotracheobronchitis. R. R. MacGregor, Kingston, Ont.—p. 48.
- Physical Characteristics Accompanying Blood Groups II and IV (Moss). F. Smith, Kelowna, B. C.—p. 52.

Sulfanilamide and Sulfapyridine for Laryngotracheobronchitis.—MacGregor points out that the highly fatal disease laryngotracheobronchitis has been ignored by the general practitioner. Of the scant literature on the subject 90 per cent

emanates from the otolaryngologist. He believes that there is a period between the time when obstructive symptoms appear and the necessity for tracheotomy when medical treatment, sulfanilamide or sulfapyridine, will produce a cure. To make this possible, early diagnosis and prompt treatment are imperative. Heretofore, until the cases became obstructive emergencies most of them were considered cases of simple croup. The condition usually begins as a simple infection of the upper part of the respiratory tract or what appears to be simple croup. Cases present symptoms of croup early in the condition, with croupy cough and moderate elevation of temperature. At this stage the parents may not consider the child sufficiently ill to call a physician. In from six to twenty-four hours the disease becomes more serious, with laryngeal and obstructive symptoms as outstanding features. The breathing becomes rapid and labored. The temperature mounts to from 102 to 105 F. There is a persistent croupy metallic cough; when the child cries or speaks, the voice is hoarse and slightly muted. On inspiration a stridor is heard and often a wheezing sound on expiration. As the disease advances, a slight degree of cyanosis appears and the child assumes a tired and toxic gray look. Unless the condition is relieved at this stage the cough reflex becomes benumbed or absent and the patient sinks into a relaxed state, the temperature mounts and death from a rapidly failing circulation ensues. The author reports 13 such cases, 9 of which he has treated with sulfanilamide and 4 with sulfapyridine, using the usual standard dosage. As an adjunct, blood transfusion was given on admission to the hospital and the child was maintained in an atmosphere of intense humidity, and for a few children the oxygen tent was utilized. Of the 13 children 2 died, 1 in the admitting room. The other child, ill for three days, was moribund on admission and died in three hours; the parents refused to have a tracheotomy performed. While the condition passes quickly from an apparently noncritical stage to one of extreme seriousness, most patients may be saved without surgical intervention if treatment is given when persistent obstructive symptoms appear. Medical instructors and writers should give more attention to this serious disease of childhood.

Connecticut State Medical Journal, Hartford

5:1-80 (Jan.) 1941

- Medical Care for the Underprivileged. C. E. A. Winslow, New Haven.—p. 7.
Aspects of Medical Defense in England. J. F. Fulton, New Haven.—p. 10.
Connecticut Looks at Smallpox—Then and Now. M. Knowlton, Hartford.—p. 13.
Rheumatic Heart Disease. C. F. Yeager, Bridgeport.—p. 19.
Indications for Therapeutic Use of Intravenous Amino Acids. L. E. Farr, New York.—p. 24.
Use and Abuse of Physical Agents in Treatment of Chronic Arthritis. H. A. Osgood, Boston.—p. 28.
Progress in Preparedness. C. Barker, New Haven.—p. 36.
Simultaneous Occurrence of Herpes Zoster and Varicella: Report of Two Cases. L. S. Ward, Niantic.—p. 41.
Osteogenic Sarcoma: Case Report. W. B. Walker, Cornwall.—p. 43.

Florida Medical Association Journal, Jacksonville

27:269-320 (Dec.) 1940

- Medicine, Public Health and Local Government. A. B. McCreary, Jacksonville.—p. 279.
Acute Cholecystitis. J. C. Davis, Quincy.—p. 283.
*Tumors of Brain in Children. P. C. Bucy, Chicago, and W. T. Haverfield, Jacksonville.—p. 287.
Vertigo. M. A. Nickle, Clearwater.—p. 293.
The Infected Hand. A. E. Mock and C. C. Webb, Pensacola.—p. 296.

Cerebral Tumors in Children.—Bucy and Haverfield believe that cerebral tumors are not appreciated sufficiently, especially among children. A recent study of 100 consecutive verified cases in children 15 years of age or younger demonstrated that such tumors are by no means rare or hopeless, as is often thought. The three most frequent periods during which cerebral tumors appear are between 7 and 8, 30 to 32 and 45 and 47 years of age. In children benign meningiomas, pituitary adenomas and cerebral gliomas are distinctly rare. The most common tumors at this age are cerebellar astrocytomas, malignant tumors of the posterior midline of the cerebellum, ependymomas of the fourth ventricle, and gliomas of the pons and in and about the third ventricle. The majority (66) of the tumors

of the authors' series were situated in the cerebellar fossa, and of those located above the tentorium (34) most of them were in and about the third ventricle. Whenever a brain tumor is suspected in a child it should be treated as though benign and removable until that supposition has been definitely disproved. Delays may be fatal to either life or vision, especially to vision, as in cerebellar astrocytomas. All too often a victim of cerebellar astrocytoma has been saved only to pass the remainder of an otherwise normal life in a black world. The recognition of other tumors is largely of importance as it bears on the problem of cerebellar astrocytomas. These tumors constitute one fourth of all the cerebral tumors of children. All but the astrocytomas generally present a discouraging therapeutic problem and a bad prognosis. Cerebellar astrocytomas are benign and can be removed with a low surgical mortality rate (5 per cent in the authors' clinic) with almost a certainty that if removed they will not recur. Their chief problem lies with the parents and the family physician. To the alert physician aware of their existence, signs, symptoms and accustomed use of the ophthalmoscope their early recognition presents little difficulty. However, if the physician is prone to attribute the early morning vomiting, which gradually increases in frequency and severity, to so-called "psychic" vomiting or to gastrointestinal disturbances and the progressive headaches to refractive errors, eyestrain and sinus disease, valuable time may be lost. As the disease progresses, papilledema gives way to optic atrophy and vision fails. Unfortunately, sight once lost as a result of secondary optic atrophy is not regained.

Journal of Infectious Diseases, Chicago

67:177-302 (Nov.-Dec.) 1940

- Comparative Susceptibility of Wild and Domestic Birds and Animals to Western Virus of Equine Encephalomyelitis (Bray Strain) in California. Beatrice F. Howitt, San Francisco.—p. 177.
Reduction or Elimination of Anti-A Antibody in O Blood by Means of Addition of the "A" Specific Substance. E. Witebsky, N. Klendshoj and P. Swanson, Buffalo.—p. 188.
Taxonomy of the Genus *Bacillus*: II. Differentiation of Small Celled Species by Means of Spore Antigens. C. Lamanna, Ithaca, N. Y.—p. 193.
Id.: III. Differentiation of Large Celled Species by Means of Spore Antigens. C. Lamanna, Ithaca, N. Y.—p. 205.
Study in Culturing Tubercle Bacilli from Sputum. E. S. King and Margaret Lucas, Wake Forest, N. C.—p. 213.
Comparison of Distribution Between Various Organs of Arsenicated Serum Proteins and of Colloidal Thorium Dioxide (Thorotrast) Following Their Intravenous Injection. W. E. Gaunt and G. P. Wright, London, England.—p. 217.
Incidence of Members of Salmonella Group in Rats. M. T. Bartram, H. Welch and M. Ostrolenk, Washington, D. C.—p. 222.
Macroscopic Agglutination Test with Typhus Rickettsiae Prepared from Infected Rodent Lungs. N. P. Hudson, Mexico, D. F., Mexico.—p. 227.
Response of Different Types and Strains of Pneumococcus to Sulfapyridine. L. H. Schmidt, Carolyn Hilles, H. A. Dettwiler and Effie Starks, Cincinnati.—p. 232.
Corynebacterium Equi (Magnusson, 1923) in the Submaxillary Lymph Nodes of Swine. A. G. Karlson, H. E. Moses and W. H. Feldman, Rochester, Minn.—p. 243.
Attempts to Transmit Virus of St. Louis Encephalitis to Newly Hatched Chicks. S. E. Sulkin, C. G. Harford and J. Bronfenbrenner, St. Louis.—p. 252.
*Results of Active Immunization of Human Beings with a Mixed Heat-Killed Vaccine of *Bacillus Typhosus*, *Brucella Abortus* and *Brucella Melitensis*. J. A. Kolmer, A. Bondi Jr. and Anna M. Rule, Philadelphia.—p. 258.
Results of Active Immunization of Mice and Rats with Heat-Killed Vaccines of *Brucella Abortus* and *Brucella Melitensis*. J. A. Kolmer, A. Bondi Jr. and Anna M. Rule, Philadelphia.—p. 268.
Germicidal Action of Cleaning Agents: Study of Modification of Price's Procedure. W. D. Pohle and L. S. Stuart, Washington, D. C.—p. 275.
Experiments on Metabolism with *Corynebacterium Diphtheriae* III. A. Tasman and A. C. Brandwijk, Utrecht, Netherlands.—p. 282.
In Vitro Action of Immune Serum on Larvae and Adults of *Trichinella Spiralis*. J. Oliver-González.—p. 292.

Immunization of Human Beings Against Typhoid and Brucellosis.—On the basis of the protective results obtained in animals, Kolmer and his co-workers determined the effect of a heat-killed vaccine carrying a dose of 1,000 million *Bacillus typhosus*, 1,000 million *Alcaligenes abortus* and 1,000 million *Alcaligenes melitensis* organisms per cubic centimeter. The vaccine was administered subcutaneously to 29 normal adult volunteers in doses of 0.5, 1 and 1 cc. at weekly intervals. The vaccine was well borne; the reactions were comparable

to those following typhoid-paratyphoid vaccine. About 96 per cent of the subjects showed agglutinins in their serums for *Bacillus typhosus* and all for *Alcaligenes abortus*. All the subjects showed the production of immune opsonin for *Alcaligenes abortus*. The serums of 40 per cent showed the presence of some protective antibody for *Bacillus typhosus* before immunization, while these protective antibodies were present in 83 per cent after immunization. The serums of about 17 per cent showed some protective antibody for *Alcaligenes abortus* before immunization compared to 79 per cent after immunization. Likewise for *Alcaligenes melitensis* before immunization the serums of about 14 per cent had some protective antibody as against 100 per cent after immunization. Immunization with the vaccine did not appear to produce allergic cutaneous sensitization to brucellergen. It appears that vaccination of human beings with mixed heat-killed 'typhoid-*Brucella* vaccine (as a substitute for the usual typhoid-paratyphoid vaccine) for simultaneous immunization against typhoid and undulant fevers is worth while.

Journal of Investigative Dermatology, Baltimore

3:443-574 (Dec.) 1940

- Fixed Eruptions Due to the Arsphenamines. L. Chargin and W. Leifer, New York.—p. 443.
*Pigmented Nevi, with Special Studies Regarding Possible Neuroepithelial Origin of the Nevus Cell. H. Montgomery and J. W. Kernohan, Rochester, Minn.—p. 465.
Experimental Basis of Deallergization Therapy. E. Urbach, Philadelphia.—p. 493.
Role of Unsaturated Fatty Acids in Acrodermia (Vitamin B₆ Deficiency) of Albino Rat. P. Gross, New York.—p. 505.

Pigmented Nevi and Origin of Nevus Cells.—Montgomery and Kernohan present clinical, pathologic and microscopic data on 460 nevi removed from 406 patients from 4 to 70 years of age. Most of the nevi were excised for cosmetic reasons and the rest because of a recent increase in size or pigmentation. Nevus cells were present in all the nevi. The study concerned itself especially with the neuroepithelial origin of nevus cells. Various special nerve trichrome, pigment and reticulum fiber stains were employed for studying the cells. Lames foliacées (equivalent to Meisner tactile corpuscles) were evident in 51, or 11 per cent, of the 460 nevi. That the nevus cells originated from the epidermis was demonstrated in a majority of the cases. In many instances the nevi apparently arose from pure cellules but in others from basal or dendritic cells. The microscopic evidence would support Unna's conception of the epidermal origin against Masson's conception of the neuroepithelial origin of the nevus cell. The superficial flat nevi and lentiginos in which nevus cells are present on microscopic study and in which there is no increase in cutaneous nerves or nevus cells deeper in the cutis would tend to refute the neuroepithelial origin. This is especially true if the pure cellules are regarded as melanoblastic cells rather than modified tactile cells of Merkle-Ranvier. A nerve origin can be admitted for the cases in which lames foliacées are present. Just as multiple nevi are seen in the same patient, so multiple points for its origin might be expected. Superficial nevi, in which collections of malignant-looking nevus cells are limited to the upper portions of the cutis or occur as intraepidermal nests and which are suspected microscopically of being early melanoeptelioma, usually offer a good prognosis. These nevi should be distinguished from frank melanoepteliomas, in which the prognosis is usually serious, especially when there is microscopic evidence of lymphatic invasion by the tumor cells. Pigmented nevi should not be confused with blue nevus or senile verruca. Pigmented nevi, whether superficial or deep, papillomatous or verrucous or slightly to deeply pigmented, need not be removed except for cosmetic reasons unless subject to repeated trauma. Surgical excision is the method of choice. Partial removal by superficial fulguration, electrolysis, solid carbon dioxide or caustics, although apparently satisfactory in the hands of many dermatologists, has the potential danger of the subsequent development of malignant epithelioma in a few cases. The remaining scar tissue can act as a constant irritant to the nevus cells left behind. Radium and roentgen therapy are condemned.

Journal of Nervous and Mental Disease, New York

92:709-848 (Dec.) 1940

- Some Peculiar Manifestations of Memory, with Special Reference to Lightning Calculators. A. A. Brill, New York.—p. 709.
Nasopharyngeal Tumors and Their Neurologic Complications. L. A. Titrud and W. T. Peyton, Minneapolis.—p. 727.
Application of Rorschach Method in Epileptic Case with Psychoneurotic Manifestations. Z. A. Piotrowski and D. M. Kelley, New York.—p. 743.
Occurrence of Complications of Nervous System Following Extraction of Teeth. B. J. Alpers, Philadelphia.—p. 752.
Compression Fractures of Dorsal Vertebrae Resulting from Convulsion Occurring During Course of Insulin Shock Therapy: Report of Case. C. Rupp, Philadelphia.—p. 762.

93:1-140 (Jan.) 1941

- Hypoglycemia and Autonomic Nervous System. J. D. Fortuyn, Amsterdam, Netherlands.—p. 1.
Psychiatric Study of 100 Criminals, with Particular Reference to Psychologic Determinants of Crime. Jane E. Oltman and S. Friedman, Newtown, Conn.—p. 16.
Contribution to "Quick-Motion-Picture" Illusion of Hoff-Pötzl. A. A. Weil, Augusta, Maine.—p. 42.
Analysis of Results in Metrazol Shock Therapy of Schizophrenia, Outlining Standards for Selection of Cases. H. O. Colomb, Philadelphia, and G. L. Wadsworth, Howard, R. I.—p. 53.
Mass Psychosis and Its Effects: Brief Survey. D. Abrahamsen, Washington, D. C.—p. 63.

New England Journal of Medicine, Boston

223:1001-1042 (Dec. 19) 1940

- Review of the Campaign to Eradicate Tuberculosis. H. D. Chadwick, Waltham, Mass.—p. 1001.
*The Contraceptive Safe Period: Clinical Study. S. Fleck, Elizabeth F. Snedeker and J. Rock, Brookline, Mass.—p. 1005.
*Diagnostic Significance of Serous Fluids in Disease. F. K. Paddock, Boston.—p. 1010.
Pruritus Ani: Etiologic Factors and Treatment in 100 Cases. E. Granet, New York.—p. 1015.
Abortion. J. Rock, Brookline, Mass.—p. 1020.

223:1043-1080 (Dec. 26) 1940

- X-Ray Pelvimetry for General Use. D. J. McSweeney and A. M. Moloney, Boston.—p. 1043.
Practical Psychiatry with Adolescents: II. Technic of Psychiatric Investigation for the General Practitioner. D. J. Sullivan and O. Billig, Asheville, N. C.—p. 1050.
Experimental Study of Treatment of Air Embolism. J. Fine and J. Fischmann, Boston.—p. 1054.
Glioma Tumor: Report of Case. R. E. Swenson, Plymouth, Mass.—p. 1057.
Clinical and Experimental Evidence on Nutritional Requirements in Obstructive Jaundice. J. D. Stewart, Boston.—p. 1059.

The Contraceptive Safe Period.—Fleck and his colleagues report the work of the Rhythm Clinic at the Free Hospital for Women (Brookline, Mass.) covering a period of forty-five months during which time 225 women applied for contraceptive advice. The authors' conception of the theory of the safe period is as follows: The sixteenth to twelfth days inclusive before the first day of the next menstruation constitute the period during which ovulation occurs. An admittedly generous allowance of three days before and after this period is made for viability of spermatozoa and susceptibility of ova, respectively. The postulated fertile period therefore extends from and including the nineteenth day before the earliest likely menstruation up to and including the ninth day before the latest likely menstruation. Of the 225 patients who applied for treatment 12 were rejected because of irregular periods and 6 because they were pregnant at the time of their first visit. Of the 207 accepted patients, 57 were observed for from six months to one year and 63 for longer than one year. Among the 207 patients actually cared for there were 24 pregnancies. Three of these were planned; 14 of the undesired pregnancies were due to failure of the patients to follow instructions, 4 because of coitus one or more times during the fertile period and 1 patient became pregnant after miscalculation of her rhythm in the clinic. Deducting these 15 from the 21 pregnancies there are only 6 actual failures among 207 patients. These 6 patients became pregnant despite the fact that they had followed instructions of the clinic. Treatment was discontinued for a variety of reasons by 95 women, evidently because of dissatisfaction. The cycles of some of these patients were irregular. The mean deviation from the average cycle among the closed cases was only two and one-tenth and

two and nine-tenths days for the 88 patients still active as of March 1940. From the 120 women observed for more than six months valuable data as regards the cyclic aspects of ovarian physiology are had and allow the following conclusions as to the merits of the safe period theory in practice: Pregnancy rates expressed as number of pregnancies per hundred person-exposure years were 90 for the patients before treatment as contrasted to 11 under clinic supervision. The corrected rate for the true failures was only 4 pregnancies per hundred person-exposure years. These rates compare favorably with those compiled for other contraceptive methods. It has been found advantageous to maintain a close contact, preferably by mail, with all patients, since errors in application were common, even among intelligent women and among those under treatment for long periods. The safe period method constitutes a workable form of contraception for a selected group of women, and it is doubtful whether it is reliable enough for individual patients for whom contraception is an essential safeguard of health.

Diagnostic Significance of Serous Fluids in Disease.—Paddock compared the clinical records with more than 1,300 serous fluids, accepting only those in which there was no doubt as to the diagnosis of the disease. He summarizes the data as follows: The customary division of transudates from exudates at the specific gravity of 1.016 was found to be true only in certain diseases. In pleural effusions 90 per cent of cardiac fluids have a specific gravity of 1.016 or less and 90 per cent of tuberculous fluids have a specific gravity of 1.016 or more. In ascites, 95 per cent of cirrhotic effusions are in the transudative range. No cases of tuberculous peritonitis were found in which the specific gravity was typical of transudates. In nontuberculous infected pleural fluids 31 per cent have a specific gravity of 1.016 or less and 34 per cent of cardiac peritoneal effusions have a specific gravity of 1.016 or more. Neoplastic fluids from both the pleural and peritoneal cavities are about evenly divided between the exudative and transudative specific gravities. Nephrotic fluids have a uniformly low specific gravity in the pleural and peritoneal cavities. The specific gravity of cardiac peritoneal fluids was usually higher than that of cardiac pleural fluids. The temperature of a fluid may change its specific gravity by as much as from 0.008 to 0.01. The underlying disease of twelve chylous fluids was cirrhosis in five, neoplasm in three, nephrosis in two and subacute bacterial endocarditis and volvulus one each. The diagnosis of chylous effusion may occasionally be made on roentgen examination, since the fluid, owing to its unusually high fat content, does not hinder the passage of the rays as do other effusions. All but three of fourteen eosinophilic fluids were bloody. Six of them were apparently due to a benign pleurisy of unknown cause, four were associated with neoplasm, two with cardiac decompensation and two with empyema. Only occasionally did the circulating blood show an eosinophilia. Charcot-Leyden crystals were found in one of the fluids, the diagnosis being cardiac decompensation. Two mucinous effusions were found, one from a patient with peritoneal carcinomatosis and one from a patient apparently suffering from carcinoma of the ovary metastatic to the peritoneum and pleura. In the eight rheumatic effusions in which the specific gravity was noted, it was 1.017 or more in four. The leukocyte count ranged from 370 to 33,600 and the erythrocyte count from 77 to 45,000. The specific gravity of three tuberculous pericardial effusions was 1.018 or more, the erythrocyte count exceeding 10,000. Bloody pericardial fluid may be found in a variety of conditions; rupture of the coronary vessels, tumors of the heart and pericardium, chronic nephritis and nontuberculous pericardial infections. Clotting of these fluids occurs only when they are withdrawn shortly after their appearance. The total leukocyte count is above 1,000 per cubic millimeter three times as frequently in infected as in noninfected fluids from both the pleural and peritoneal cavities. Neoplastic fluids have a leukocyte count above 1,000 in 50 per cent of the cases. The protein content of effusions contributes no more than does the specific gravity to the diagnosis. The differential leukocyte count is of little diagnostic value except in differentiating nontuberculous infections.

New York State Journal of Medicine, New York

41:1-82 (Jan. 1) 1941

- The Medical Reserve Officer of the United States Navy. E. R. Eaton, New York.—p. 7.
Enteropathy in Deficiency States. D. Adlersberg and M. Weingarten, New York.—p. 14.
Clinical Factors of Vitamin B Content. M. L. Drazin, Long Island.—p. 20.
Dacryocystitis of Newborn. H. V. Judge, Albany.—p. 25.
Inhibiting Action of Testosterone Propionate in Postpartum Lactation. A. M. Hellman and L. F. Ciner, New York.—p. 30.
Atypical Pneumonias. H. Fredd, Brooklyn.—p. 34.
Incidence of Types of Pneumococci in Sputum from Patients with Respiratory Infections Other Than Pneumonia. I. Ardelean, Cluj, Rumania.—p. 40.
*Subacute Bacterial Endocarditis: Treatment with Sulfapyridine and Intravenous Injections of Typhoparatyphoid Vaccine. H. A. Solomon, New York.—p. 45.
Buzov's Solution: New Method of Preparing Liquor Aluminum Acetate (N. F.). F. C. Combes, New York.—p. 51.

Subacute Bacterial Endocarditis.—Solomon used sulfapyridine and typhoparatyphoid vaccine for the treatment of 8 patients with subacute bacterial endocarditis. The drug was given orally, and the vaccine was injected intravenously. The author believes that by combining foreign protein shock therapy with the sulfonamides, the effectiveness of the drug is enhanced not only by the hyperpyrexia produced, which renders the drug bactericidal instead of bacteriostatic, but also by the addition of immunity factors (some of which are not clearly understood), which are activated at the same time. Seven of the 8 cases of subacute bacterial endocarditis were due to *Streptococcus viridans* and 1 to the nonhemolytic streptococcus. There were adequate criteria for a diagnosis of active bacterial endocarditis with at least one positive blood culture in each case. Five of the patients are well, 1 for eighteen, 1 for fifteen, 1 for three and 2 for more than two months. One patient died of agranulocytosis one month after leaving the hospital, but there was no clinical or bacteriologic evidence that the original infection had recurred. The treatment failed in 2 cases, although a temporary improvement did occur; in 1 of these the infection existed for more than four months and was probably superimposed on a congenital defect of the interventricular septum, and in the other 1 the disease had been present for more than six months and at necropsy firm, flat vegetations were extensive over the endocardium. Both of these patients had received a great deal of sulfonamide chemotherapy for a long time before the combined form of treatment was instituted. This suggests bacterial resistance to the drug. However, 1 of the cases reported illustrates that the combined therapy may prove effective even after prolonged sulfonamide therapy alone has failed. The method of therapy was as follows: Two Gm. of sulfapyridine was given every four hours for two doses and then reduced to 1 Gm. every four hours. On the night of the second day of sulfapyridine therapy an intravenous injection of $\frac{1}{2}$ minim of typhoparatyphoid vaccine was given and repeated in one or two hours if necessary to maintain the temperature above 104 F. for at least three consecutive hours. The vaccine was given every night for from seven to ten days, the amount being increased as required to produce the degree and duration of hyperpyrexia. The injections were given several hours after the last meal of the day so as not to interfere with the patient's nourishment. Accessory measures were all utilized as indicated. Blood and urine examinations to follow the concentration of the drug in the blood and to discover any toxic effects early were carried out routinely. Sulfapyridine was usually given for a week or less after the vaccine was discontinued.

West Virginia Medical Journal, Charleston

37:1-48 (Jan.) 1941

- Röntgen Ray Examination of Small Intestine in Nutritional Disturbances. R. Golden, New York.—p. 1.
Water Balance. J. S. Pearson, Bluefield.—p. 10.
The Physician and the New Federal Food, Drugs and Cosmetic Act. J. L. Hayman, Morgantown.—p. 14.
Chemotherapy in the Practice of Eye, Ear, Nose and Throat. A. A. Wetzel, Charleston.—p. 18.
Wetzel, A. A.—Wetzel County Nurse Delivery Service. D. V. Hatton, New Martinsville.—p. 21.
Primary Multiple Microcystic Lymphangioma of Spleen: Case Report. W. J. Tomlinson, Montgomery.—p. 24.
Chemotherapy in Acute Bacillary Dysentery: Part I. Clinical Types of Acute Bacillary Dysentery. G. M. Lyon, Huntington.—p. 25.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Heart Journal, London

2:221-306 (Oct.) 1940

- Influence of Fear on Electrocardiogram. F. Mainzer and M. Krause.—p. 221.
Cardiovascular Disturbances Caused by Deficiency of Vitamin B₁. G. Konstam and H. M. Sinclair.—p. 231.
Beriberi Heart: Case. W. G. A. Swan and F. Laws.—p. 241.
Pulmonary Stenosis Produced by Aneurysm of Ascending Aorta. K. L. Dickens.—p. 247.
Aneurysmal Dilatation of Pulmonary Artery. K. D. Wilkinson.—p. 255.
Pulsating Manubrial Tumor: Note. T. Lewis.—p. 260.
Esophageal Electrocardiograms in Auricular Fibrillation. J. Nyboer and J. G. M. Hamilton.—p. 263.
Myocardial and Pericardial Lesions Due to Nonpenetrating Injury. E. Warburg.—p. 271.
Vascular Response in Chronic Rheumatoid Arthritis. A. Benatt and H. J. Taylor.—p. 281.
Heart Rate During Simple Exercise. J. A. C. Knox.—p. 289.
William Withering (1741-1799) and Edghaston Hall. K. D. Wilkinson.—p. 298.

British Medical Journal, London

2:773-818 (Dec. 7) 1940

- J. Marion Sims and Vesicovaginal Fistula: Then and Now. C. Moir.—p. 773.
Repair of Vesicovaginal Fistula by New Technic. J. B. Macalpine.—p. 778.
Treatment of Outpatients by Electrical Convulsant Therapy with Portable Apparatus. E. B. Strauss and A. Macphail.—p. 779.
Erythromelalgia. E. D. Telford and H. T. Simmons.—p. 782.
Reversed Rotation of Intestine Accompanied by Encapsulating Peritonitis: Report of Case. J. W. G. Grant.—p. 783.

2:819-854 (Dec. 14) 1940

- Interim Report on Dyspepsia in the Army. R. T. Payne and C. Newman.—p. 819.
*Note on Transfusion of Reconstituted Dried Human Serum. H. A. Brown and P. L. Mollison.—p. 821.
Complete Obstruction of Inferior Vena Cava: Case. J. A. Keen.—p. 823.
Imperfect Sterilization of Dressings as Probable Cause of Postoperative Tetanus. S. N. Hayes.—p. 825.
Lactation and Breast Feeding. W. Hunter.—p. 827.
Sterilization of Blood Bank Bottles: Practical Hints. G. E. O. Williams.—p. 830.

Transfusion of Reconstituted Dried Human Serum.—Brown and Mollison state that the dried serum emanating from the Medical Research Council's serum drying unit at Cambridge is not only safe but efficacious. The process consists essentially in drying after it is passed through a Seitz filter from the frozen state in vacuo. Ninety-one transfusions of this serum, usually in four times normal concentration, have been given. Because of its high viscosity it must be given under pressure. Approximately half of the patients treated had had a recent hemorrhage or were in shock. The serum was usually given at approximately room temperature. A rapid increase in blood pressure occurred after the transfusions; often 80 per cent of the maximal rise took place within from five to ten minutes of the transfusion. The rises varied but on the whole were higher with the larger doses. The blood pressure readings of twenty-three of forty-one injections showed a rise of 15 mm. of mercury or more systolic within thirty minutes of transfusion. There was no instance of a fall in pressure. The pulse rate was taken after forty injections; it decreased after sixteen, rose in four and did not change significantly in twenty. Evidence of hemodilution was obtained in most of the cases so studied. Unequivocal evidence of clinical improvement was found in twenty-eight of forty-four transfusions. The results are better when larger doses are given. The authors suggest that the initial transfusion be not less than the equivalent of 400 cc. of normal serum. Larger quantities will be required in severe cases. There were seven febrile reactions after ninety-one transfusions, six instances of vomiting, two of urticaria and three of severe lumbar pain. The reactions were mild. The lumbar pain was of short duration and was not followed by further symptoms. The serum was all of group AB or A. There was no reason to suspect a hemolytic reaction. Yet direct matching tests between the serum given and the corpuscles of the 3 patients with lumbar pain

showed no agglutination. There was no hemoglobinuria in any of them. Because of the occurrence of lumbar pain and of difficulties in administering the concentrated serum, it might be better to give it in lower concentration. A further contraindication to using four times normal serum is the rather frequent accident of thrombosis in the vein injected. Twice normal serum will flow easily by gravity through the ordinary needle used for injection.

Journal of Mental Science, London

86:1065-1176 (Nov.) 1940

- *Investigations into Significance of Endocrines in Involutional Melancholia. R. E. Hemphill and M. Reiss.—p. 1065.
Paleophrenia: Reevaluation of Concept of Schizophrenia. R. L. Osborne.—p. 1078.
Compensatory Enlargement of Posterior Communicating Artery Following Arteriosclerotic Changes of Posterior Cerebral Artery. R. Klein.—p. 1086.

Significance of Endocrines in Melancholia.—Hemphill and Reiss studied 30 women with symptoms of depressive disorders in an effort to determine whether and to what measures involutional changes contribute to mental illness. The symptoms of the 30 women varied in severity, with certain individual differences; they were associated with the menopause or involutional state and seemed to present the clinical picture of involutional melancholia. Only 4 women had a history of previous attacks of depression. Therefore the other 26 could not be regarded as belonging to the manic-depressive psychosis and in these the menopause may have been the chief factor of influence. The present depression of the 4 women seemed to be so closely associated with the menopause that the menopause could be regarded as etiologic. The same symptoms of endocrine dysfunction were not prominent in every patient. The most salient features of 11 women seemed to be purely hypo-ovarian, of 4 hypo-ovarian combined with hypothyroidism, of 7 hypo-ovarian combined with hyperthyroidism and of 8 hypo-ovarian combined with hypoadrenalism. Fifteen of the 30 women had never borne children. This suggests that childbearing was not an important etiologic factor. However, of the four types of patients 9 of the 11 with the pure hypo-ovarian type had never borne children, 1 of the 4 patients with the hypo-ovarian with hypothyroidism and 1 of the 7 patients with the hypo-ovarian with hyperthyroidism type of disorder had never borne children, and of the 8 patients of the hypo-ovarian with hypoadrenalism type of disorder 5 had never borne children. It is striking that of the pure hypo-ovarian type as high a proportion as 9 out of 11 had never borne children, while of the hypo-ovarian with increased thyroid activity 6 of 7 patients had borne children. The excretion of gonadotropic substance was studied before and after treatment, as the authors believed that some correlation might exist between the gonadotropic action of the anterior lobe of the pituitary and features of the mental illness. Increased gonadotropic substance was more commonly found in the first and third types of illness. When increased excretion of gonadotropic substance occurred before treatment, with one exception it disappeared after treatment with estrogen. The authors cannot say definitely how far the estimation of gonadotropic substance in the urine can constitute a guide for the diagnosis or the treatment of involutional melancholia. Nineteen patients were selected for treatment with estrogen, and in 10 the symptoms either completely or partially disappeared. The improvement was observed only among the patients belonging to the first and third types: hypo-ovarian type and hypo-ovarian combined with hyperthyroidism. The estrogen tended to aggravate the symptoms of patients in whom the thyroid function was diminished. This may indicate that estrogen can inhibit still further an already insufficient thyroid mechanism. Failure of the pituitary to supply corticotropic hormone may be responsible for adrenal insufficiency observed among the fourth group of patients. Under certain conditions it may be possible to correct this insufficiency by administering corticotropic substance, as a remarkable change in the physical and mental state occurred in 1 such patient. The authors are of the opinion that, with increasing knowledge of the functions of the anterior lobe of the pituitary, many of the difficulties of this problem will be solved. Until this is done the hormones for the treatment of complex glandular disturbances arising out of the menopause should be chosen cautiously.

Klinische Monatsbl. f. Augenheilkunde, Stuttgart**105:401-520 (Oct.) 1940. Partial Index**

- Diagnostic and Therapeutic Problems in Tumors of Region of Chiasm. P. Knapp.—p. 401.
- Observations on 500 Cases of Epidemic Keratoconjunctivitis. M. zur Nedden.—p. 424.
- *Chemotherapy of Blennorrhea Neonatorum: Local Application of Acetylsulfanilamide. E. Bruens.—p. 430.
- Question of Heredity in Retinal Glioma. G. Badtke.—p. 451.
- Blepharochalasis, Goiter and Double Lip. F. Klemens.—p. 474.
- Luxation of Lens as Isolated Symptom in Arachnoidactylia. H. Rieken.—p. 482.
- Metastases of Mammary Cancer in Both Eyes. A. Lusa.—p. 495.
- Myopic Change of Macula Complicated by Tobacco Amblyopia. Marie Procksch.—p. 507.

Chemotherapy of Blennorrhea of Newborn.—Bruens reports on treatment of gonorrheal infection of the conjunctiva in the newborn with sulfanilamide derivatives to the exclusion of all other local and general measures. After several attempts with uliron (dimethyl-disulfanilamide) he changed to the more effective albucid (acetylsulfanilamide). He found that oral administration of acetylsulfanilamide caused disappearance of gonococci from the conjunctiva within a few days, but it also produced symptoms of intoxication such as cyanosis, vomiting and changes in the blood picture. To avoid these effects he resorted to local application. He found the following method effective: 1. During the first twenty-four hours the conjunctival sac is irrigated every fifteen minutes with physiologic solution of sodium chloride. Pseudomembranes are removed before the irrigation. 2. A 10 per cent solution of acetylsulfanilamide is instilled into the conjunctival sac at intervals of thirty minutes. Care is taken that the solution enters all conjunctival folds and pockets. The instillation is continued for twelve hours. 3. If twenty-four hours after treatment the conjunctival sac is not free from gonococci, the same procedure is repeated with a more concentrated solution. The concentration should not exceed 20 per cent. 4. The after-treatment of the sterile conjunctiva consists in irrigations with physiologic solution of sodium chloride at intervals of from one to three hours, depending on the amount of secretion. The author reports 7 cases in which he resorted to this treatment. The efficacy of local application of acetylsulfanilamide suggests that the substance does not have to pass through the patient's body in order to be effective.

Wiener klinische Wochenschrift, Vienna**53:535-554 (July 5) 1940**

- Science and Postgraduate Medical Education. R. Ramm.—p. 535.
- General and Specific Therapy. L. R. Grote.—p. 536.
- *Chemotherapy of Encephalitis. J. Sás.—p. 541.
- Importance of Vitamin C for Workers Coming in Contact with Benzene. O. Libowitzky and H. Seyfried.—p. 543.

Chemotherapy of Encephalitis.—According to Sás, encephalitis is usually a sequel to acute infectious disease, particularly influenza. Since a number of acute infectious diseases are influenced favorably by chemotherapy there seemed to be justification to try this treatment in encephalitis. The author regards sodium salicylate as the best drug in encephalitis. He employed it successfully in treating 24 patients. All of the patients recovered and no sequels remained. Adults were given 5 Gm. of sodium salicylate daily. This quantity was divided into five doses of 1 Gm. each, one of which was administered during the night. The individual dose was dissolved in a spoon of water. For children the doses were reduced. In case of gastric disorders, or in unmanageable children, the drug can be given by rectum. If the pulse becomes irregular, or the patient develops a moderate fever, digitalis is administered. Antipyretic treatment is advisable for high fever. The author suggests that vitamin B preparations might prove helpful. He stresses that encephalitis occurs also in nurslings, particularly at a time when influenza is prevalent. They should likewise be treated with sodium salicylate. Individual doses of from 0.14 to 0.18 Gm. should be given four times during the day and once at night. Singultus is often the only apparent symptom of encephalitis. This symptom may persist for several days and may make food taking impossible because the first act of swallowing elicits the hiccup. The author found sodium salicylate helpful in the treatment of the hiccup as well.

Nagasaki Igakkai Zassi, Nagasaki**18:679-866 (June 25) 1940. Partial Index**

- *Blood Groups and Types as Determined by Human Saliva, with Special Reference to AB, MN, Q and E. S. Ishizawa, K. Nonaka, M. Okajima, S. Tokunaga, H. Sekimoto and M. Furukawa.—p. 679.
- *Classification of Human Serums with Eel Erythrocytes. K. Nonaka.—p. 693.
- Investigations on Blood Group Q. S. Ishizawa.—p. 701.
- *Blood Groups Determined by Human Meconium. H. Sekimoto.—p. 745.

Blood Groups Determined by Human Saliva.—Ishizawa and his co-workers examined blood groups and blood types, together with their subdivisions, of 200 human subjects. Various agglutination methods were employed, using A-B agglutinogens and a-b agglutinins, M-N testing fluids, Q serum after absorption with Aq, Bq red cells, as well as serums derived from animals (ox, goat, dog and eel), but particularly human saliva. The results of extensive agglutination tests in various combinations of testing fluids and red cell suspensions indicate great variations according to particular combinations used, the most constant relationships having been demonstrated between A-B groups and various secretions of the body. The classification of blood groups and types according to other methods, such as the S system, requires further investigations.

Classification of Human Serums with Eel Erythrocytes.—Nonaka prepared a 2 per cent suspension of eel erythrocytes for use in testing human serums, with special reference to the classification and heredity of the latter. According to his observations the classification of human serums based on their reaction with eel erythrocyte suspensions is independent of any known blood groups or of any properties of iso-agglutinins. Hetero-agglutinins as demonstrated by eel red cells follow in serums of various members of the same family a certain hereditary law, but no definite conclusions can as yet be drawn from the small series studied.

Blood Groups of Human Meconium.—Researches of various investigators have demonstrated the secretion of group-specific substances for all blood groups except the O group; the amount of such substances secreted determines the classification of saliva into the secretory and nonsecretory types. In the case of the O group a similar classification has been attempted on the basis of the amount of inhibitory substance in the agglutination of the species-specific erythrocytes. Using the meconium obtained during the first twenty-four hours of postnatal life, Sekimoto prepared a diluted meconium filtrate which was then tested against the washed A and B erythrocytes. The standard serum was prepared from normal O group persons with high agglutinin titers. The results of these observations were based on the degree of agglutination of A and B red cells when mixed with a stated amount of dilute meconium, using the standard O serum as a control. By testing 90 specimens of meconium, the author found that group-specific substances are present in the human meconium of both A and B, while those of the AB group contained both A and B factors, but that in those from the O group no specific substance was discovered.

Ugeskrift for Læger, Copenhagen**102:1157-1186 (Nov. 7) 1940**

- *Attacks of Arthritis Urica and Increased Excretion of Uric Acid in Patients with Hematemesis and Melena. H. Ewertsen and E. Meulengracht.—p. 1157.
- Changes in Sedimentation Reaction after Short Wave Treatment. P. Brændstrup.—p. 1164.
- Sacral Anesthesia. W. W. Nielsen.—p. 1166.

Uratic Arthritis and Uric Acid Excretion After Hematemesis and Melena.—Ewertsen and Meulengracht report four cases of gout following hematemesis and melena. A predisposition to such attacks is considered probable. In 7 patients who had hematemesis and melena they found increased excretion of uric acid in the urine after the hemorrhage and attribute it to an increased endogenous production of uric acid which occurs simultaneously with the reticulocyte reaction at the start of the period of regeneration and seems proportional to it. This increased excretion is believed to be related to the increased regeneration of the blood and the increased liberation and disintegration of normoblast nuclei, the nucleoproteins of which constitute increased material for the production of uric acid.

Book Notices

The Treatment of Diabetes Mellitus. By Elliott P. Joslin, A.M., M.D., Sc.D., Medical Director, George F. Baker Clinic, New England Deaconess Hospital, Boston, Howard F. Root, M.D., Physician, New England Deaconess Hospital, Priscilla White, M.D., Physician, New England Deaconess Hospital, and Alexander Marble, A.M., M.D., Physician, New England Deaconess Hospital. Seventh edition. Cloth Price, \$7.50. Pp. 783, with 9 illustrations. Philadelphia: Lea & Febiger, 1940.

The newest revised edition of Joslin's standard textbook on diabetes for physicians, probably the best known and most authentic modern work in the world, is improved by the addition as major authors of three of Dr. Joslin's associates, Drs. Root, White and Marble, and by the inclusion of thoroughly precise reviews by these authors of the contemporary experimental literature on related subjects. Fully 70 per cent of the volume now has been rewritten or has been subjected to major revision by the associates of the great clinician.

Still clinging to the well known statistical approach and colorful style for which the senior author is noted, this new edition has been thoroughly sifted and augmented, chiefly by the refreshing supplements by the junior authors. Joslin's thoughtful and conscientious experience with some thirteen thousand diabetic patients over a period of more than forty years provides breadth and depth for an authoritative and exact reference volume. Undoubtedly no other person has ever seen so many patients, studied them so carefully and made such extensive use of modern refinements of treatment. For this reason alone, no internist should fail to own and use this volume.

New chapters have been added on allergy and on syphilis in diabetes by McDaniel, and on hypoglycemia by Marble. Of greater importance however, are thoroughly comprehensive reviews of the pertinent physiologic and pathologic literature by Marble and Root and reports by White on recent progress, largely due to her studies, in understanding hereditary influences in diabetes, progress of diabetic children and greater success in pregnancy among diabetic mothers. Using the Smith technic of control, White has successfully corrected a large percentage of toxemias in pregnant diabetic women, has obtained fetal mortality rates as low as in mothers free from toxemia, and has suggested a new conception and an exact and useful method of studying and perhaps controlling similar complications in non-diabetic pregnancies.

Joslin's interesting study of diabetes in Arizona, the subject of his recent Billings lecture, is new in this volume. The study is unique and the philosophy stimulated by it is convincing, namely that, contrary to superficial reports, the discrepancies in diabetic experience in Arizona are only apparent. With proper analysis and corrections for known differences, diabetes occurs and behaves there just as it does elsewhere; thus the dictum "the universality of diabetes."

Root's discussion of the changing morbidity and mortality in diabetes adequately emphasizes the shift away from true diabetic complications toward those due to associated vascular disease so obvious since the advent of insulin in treatment. This well studied large series of cases brings out forcefully the striking reduction in deaths due to acidosis and the associated great increase in deaths due to cardiovascular disease, the latter replacing the former statistically as a cause of death in the last twenty-five years, as more diabetes is discovered and more diabetic patients live long enough for arterial degeneration to occur.

Other students of diabetes who are freer from the influence of Joslin's beliefs will be disappointed to learn that in his clinic there still exists the assumption that diabetes is directly responsible for the frequently associated vascular disease. There still is no sign of proper recognition of the importance of age in this respect, of the fairly common incidence of arteriosclerosis in non-diabetic patients of comparable ages, of other possibilities which might account for the common association of the two disorders, or of the beliefs of other competent observers such as Woodyatt and Wilder. The tacit assumption that diabetes causes arteriosclerosis is widely accepted, largely because of the prominence given to it by this group of authors. On account of this, progress in understanding the problem may be retarded. This criticism is the only serious one which could be aimed at an otherwise splendid and immortal collection of knowledge.

The Social Relations of Science. By J. G. Crowther. Cloth. Price, \$3.50. Pp. 665. New York: Macmillan Company, 1941.

The thesis set forth is that "modern science has been associated with freedom because it arose out of the activities of the craftsman." The great thinkers of Greece made small contributions in the application of science because of the separation of the thinking class from the remainder of society, which was based on slavery. This caused Greek science to lose itself in speculations. The single exception to this was medicine, which produced the first balanced science. "The hippocratean writings contain the first description of scientific method which contains all its elements." But the facts of human physiology are too complicated and difficult subjects of research to prove a good foundation of science. Aristotle, a son of a doctor, made his greatest contributions through the study of biologic material. Alexandrian science was in closer touch with craftsmanship but was still handicapped by widespread slavery. The contributions of Egyptian science were large, but the fact that science became the instrument of a ruling class laid the foundation of a dictatorship which lasted for thousands of years. Roman slavery separated thinkers from the mass of society and made even the handling of the instruments necessary for experiment degrading. Even medical research came to depend more and more on verbal knowledge and less on the experimental facts of anatomy. Muslim civilization made its great contribution because of its close association with commerce and industry. With the building of cathedrals and the development of commerce and industry following the Renaissance, modern science began to make its appearance. The growth of universities, the necessity of accurate divisions of time, the development of trade which brought about the introduction of money and accounting, and above all the growth of craftsmanship and the greater social recognition given to industry and manual labor released the forces responsible for the great growth of science in modern times. If scientists fail to recognize their social obligations and opportunities, they may easily become the instruments for a new totalitarian tyranny that will destroy science. If they do put their abilities at the service of society, they may retain their freedom and contribute to the development of a society in which the achievements of science may make possible greater well-being for all. It is an inspiring work of a type that is urgently needed at the present moment.

Special Surgery in Wartime. By D. W. C. Northfield, M.S., F.R.C.S., and others. Published by The Practitioner. Cloth. Price, 6s. Pp. 74. London: Eyre & Spottiswoode, 1940.

This, the latest addition to the *Practitioner* booklet series, contains contributions by five authors dealing with new problems brought about by air raid casualties and other wartime emergencies. The aim of the publication is to assist the general practitioner in solving the acute problems of the diagnosis and treatment of injuries to the head, chest, spinal cord and abdomen. The subjects are treated in a brief, authoritative and preeminently practical manner. The information offered embraces the experiences of recent years. In the treatment of head injuries Northfield recommends that all compound fractures of the cranium be immediately hospitalized. The wound itself is treated by debridement, suture and the administration of sulfonamide derivatives. The incidence of posttraumatic epilepsy may be diminished by the administration of small doses of phenobarbital or bromide for three years after the injury. In the treatment of spinal cord injuries McAlpine urges immediate administration of morphine, transportation to a hospital and the passage of a soft rubber catheter under strict aseptic precautions if signs of paralysis are present. After reduction of the fracture the patient is treated in a plaster of paris cast. The urinary bladder is to be catheterized every six hours. In a chapter on abdominal injury Cope points out that the main symptoms of visceral injury are due to one or more of three conditions: shock, hemorrhage and peritonitis. The existence of intracavitary bleeding is recognized by a gradual rise in the pulse rate, while the development of peritonitis is characterized by vomiting, persistent local rigidity tending to extend, gradually rising pulse rate and deep local tenderness with shallow respiration. Every penetrating wound caused by a sharp instrument needs exploration under an anesthetic. The same holds true of all cases in which the abdominal wall is ruptured by

blunt violence. Nearly every case in which penetrating missiles have caused serious hemorrhage or symptoms of peritonitis require operation. One should be on the lookout for multiple injuries. The early treatment of chest injuries resolves into the treatment of severe shock and dyspnea and demands warmth and morphine. In a chapter on the treatment of burns, Wallace stresses the importance of treatment of the primary shock before undertaking the local treatment. Preliminary cleaning is most important and must be done under general anesthesia, preferably nitrous oxide and oxygen. If the burn is extensive an infusion of plasma or acacia-saline solution must be given intravenously by the drip method as a precautionary measure before or immediately after the onset of secondary shock and before local treatment is instituted. Wallace favors the use of 20 per cent tannic acid or 10 per cent silver nitrate in the local treatment of burns. For cases seen forty-eight to seventy-two hours after the burn and obviously septic, large doses of sulfanilamide are to be administered. Since the introduction of the sulfonamide group of drugs the incidence of serious infection has considerably diminished. In the presence of toxemia, circulatory failure is to be prevented or combated by intravenous infusion of plasma along with desoxycorticosterone acetate. Recent information available on the application of chemotherapy to war injuries is given in a special appendix. The booklet is admirably calculated to meet the urgent demands of the present hour.

Index-Catalogue of the Library of the Surgeon General's Office, United States Army (Army Medical Library). Authors and Subjects. Fourth Series. Vol. V: Eager-Fyfe. Cloth. Price, \$2.75. Pp. 1,220. Washington, D. C.: Supt. of Documents, Government Printing Office, 1940.

The fifth volume of this noteworthy contribution to medical bibliography proceeds from Richard Eager, who wrote a book for probation of nurses in mental hospitals, to John William Fyfe, who published in 1903 a work on materia medica. The Army Medical Library now includes approximately 413,725 volumes and 598,002 pamphlets of all sorts, including letters, broadsides and medical theses. This represents, according to Col. Harold W. Jones, now librarian, about one half of the total medical literary production of the world from the beginning of printing until today. Efforts are being made by the library to obtain the other half. During the current year several extraordinary works were purchased, dating back to 1548 and other works in the sixteenth century. There was added also a rare broadside, illustrating Siamese twins, which was printed in 1512. The library now receives approximately two thousand, two hundred periodicals. This index is one of the most important fundamental works of reference in the field of medicine—a work which must perforce be in every medical library to make it complete.

Who Walk Alone. By Perry Burgess. Cloth. Price, \$2.75. Pp. 312, with 14 illustrations. New York: Henry Holt & Company, 1940.

For fifteen years the author of this book has been national director of the Leonard Wood Memorial, which is a foundation devoted to leprosy. Almost in the form of a novel there is told here the story of a young man who discovered that he had leprosy after an experience in the Philippine Islands during the Spanish American War. A preface indicates that some 30 American soldiers became patients at the great leper colonies after the war.

The "explanation," which is in the form of a foreword to the book, says that it is the actual story of the soldier whose name was not Ned Langford but who actually experienced what is said of Ned in this account. A few other experiences have been added by the author merely to obscure the identity of the man whom the book describes. Many of the names in the book are fictitious, but there are others that are actually those of people who worked for and with the lepers in Cullion, Cebu and Carville.

A brief appendix to the volume gives many facts concerning leprosy and corrects many false impressions and superstitions which today hamper necessary work against this disease. The volume has many fine illustrations and a good index.

This account should not be confused with the ordinary scientific story. It has the thrill of a novel. It is written with sympathy and insight. It cannot but inspire every reader to do what he can for those who suffer from this disease. It required great courage for Ned Langford to reject suicide as an escape

and to break with his past for a career in a leper colony. He found life well worth the living for the friends that he made and the service that he was able to give. Thus this book should inspire many another person to face lesser difficulties with more composure than many exhibit in the face of minor difficulties.

Unresting Cells. By R. W. Gerard, Associate Professor of Physiology, University of Chicago, Chicago. Cloth. Price, \$3. Pp. 439, with 173 illustrations. New York & London: Harper & Brothers, 1940.

The theme of this modern natural philosophy is borrowed from John Masefield:

What am I, Life? a thing of watery salt,
Held in cohesion by unresting cells . . . ?

The author has described in nontechnical language the organization of cells, the nature and functions of enzymes, the exchange of energy, and the phenomena of irritability and behavior. The earlier chapters lay the basis for presenting current knowledge and theories concerning immunity, growth, reproduction, aging, embryogeny and heredity. He has successfully analyzed and described how creatures work, "a formidable task . . . for the analysis soon leads to the microscopic cell, submicroscopic particles and films, complicated molecules and forces—phenomena far beyond the comfortable familiarity we all have with cats and caterpillars and crayfish." The book commends itself to the physician who would refresh his memory of the elementary aspects of biology and learn of recent developments in this field. He will find it entertaining, instructive and authoritative. It has handsome illustrations, many of which are original, planned by the author and Mrs. Elizabeth Newhall and executed by her. One group of these cleverly depicts such varied scenes as the orderly weddings and divorces of molecules and the antics of Maxwell's demon.

Fifty Years in Medicine. By Joseph C. Beck, M.D. Cloth. Price, \$3. Pp. 329, with 20 illustrations. Chicago: McDonough & Company, 1940.

Dr. "Joe" Beck thought vaguely for some time about writing the story of his life, and then one day he decided to do it. His book is different in that it reflects far more of the great men with whom he came in contact than of the intimate details of his own career. Indeed it begins with brief sketches of medical masters known particularly to the Chicago area. His modesty leads him to have his boyhood days described by his wife. This is perhaps one of the best chapters in the book. It is followed by a chapter on his medical life and an account of his family and his travels. Then come studies of various well known otolaryngologists and of organizations in the field of otolaryngology, in which Dr. Beck was associated. Here is a different type of autobiography—a veritable guide to otolaryngology in the Midwest. It is colloquial in its tone and therefore pleasant to read.

Las meningitis tuberculosas del adulto. Por Armando Sarno, Raul A. Piaggio Blanco y Alejandro Artagaveytia. Paper. Pp. 312, with illustrations. Montevideo: Imprenta "El Siglo Ilustrado," 1940.

This book is the result of epidemiologic and anatomoclinical studies carried on for several years by the authors in their character of director and active members of the Uruguayan antituberculosis crusades. It deals with the general conceptions and importance of primary, postprimary, secondary and tertiary tuberculosis and their relations with the various anatomoclinical types of tuberculous meningitis in adults, symptoms and clinical course of the disease, pressure, aspect, cytology, chemistry and bacteriology of the cerebrospinal fluid, differential diagnosis, evolution, prognosis, prevention and treatment of the disease in adults, pathologic anatomy and experimental tuberculous meningitis. There are 24 pages of bibliography. The book is of value, especially in the clinical and antiepidemiologic fields.

A Textbook of Clinical Pathology. Edited by Roy R. Kracke and Francis P. Parker. Second edition. Cloth. Price, \$6. Pp. 780, with 257 illustrations, including 34 colored plates. Baltimore: William Wood & Company, 1940.

The second edition of this book appears only two years after the first. The fourteen contributors are well qualified in their respective fields. The diagnostic procedures and special tests are adequately covered for most purposes. The book is authoritative and should be available as a reference book to all who are engaged in clinical laboratory work.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PROTECTIVE PREPARATIONS AGAINST SUNLIGHT

To the Editor:—Can you supply me with a formula for the prevention of freckles on the face due to exposure to the summer sun? I have read somewhere, but cannot recall where, of some compound which successfully prevents actinic rays from reaching the skin. Also anything new in the treatment of freckles.

Adolph Spiro, M.D., Detroit.

To the Editor:—A chemical has been mentioned which has the ability to filter out the actinic rays of the sun. I would appreciate it if you will be good enough to give the name of such a chemical or manufactured product.

Charles F. Good, M.D., Cleveland.

ANSWER:—In answer to a similar query disodium naphthol sulfonate 5 per cent in alcohol or ointment was suggested (*THE JOURNAL*, March 31, 1934, p. 1103). More recently Bachem and Fantus (Evaluation of Skin Protection Against Ultraviolet Rays, *Arch. Phys. Therapy* 20:69 [Feb.] 1939) made a thorough spectrographic study of the effect of various ointment bases and other substances as protectants against light. They found that of the bases studied wool fat, yellow petrolatum and diachylon ointment give the best protection. The yellow petrolatum is much better than the white. A cream made of 1 part wool fat and 3 parts yellow petrolatum and emulsified with 50 per cent water cut off the ultraviolet rays quite well. Ichthammol in 2 per cent strength was also effective. Esculin and methyl salicylate were shown to be more efficient than quinine oleate.

Opaque powders produced the greatest shielding, and of these titanium dioxide was most effective, excelling calamine powder. They recommend the cuticolor powder advocated by Fantus and Dynewicz (Cuticolor Preparations, *J. Am. Pharm. A.* 27:878, 1938) consisting of:

	Gm. or Cc.
Red ferrous oxide.....	6.0
Yellow ferrous oxide.....	8.0
Titanium dioxide	86.0

This they call cuticolor titanium dioxide; it can be made up into a lotion as follows:

	Gm. or Cc.
Cuticolor titanium dioxide.....	15.0
Bentonite	2.5
Stronger rose water to make.....	100.0

Or a cream salve may be made:

	Gm. or Cc.
Cuticolor titanium dioxide.....	30.0
Glycerin	1.5
Vanishing cream	70.0

A number of other suggestions are given. Tests of these against proprietary preparations on the market showed the Bachem and Fantus preparations greatly superior.

POSSIBLE SYMPTOMS OF INTOXICATION FROM PYRENE EXTINGUISHER

To the Editor:—In a recent case of "drunken driver" a question of differential diagnosis arose between the effects of pyrene liquid as used in fire extinguishers and acute alcoholic intoxication. The judge has reserved decision pending some information on the action of pyrene. Will you please inform me as to the pharmacology, physiology and toxicity of pyrene?

B. L. Steinberg, M.D., Singac, N. J.

ANSWER:—It is believed that pyrene is likely to consist of approximately 90 per cent carbon tetrachloride with the addition of some anticorrosing agent such as dichloromethane or trichloromethane and, on order, a telltale dye such as "Oil Red O."

In mild acute carbon tetrachloride poisoning there may arise such symptoms as headache, nausea, vomiting, sleepiness, mental confusion, depressed intellectual faculties, abdominal pain and distaste for food. Some of these symptoms are similar to those from ethyl alcohol, and the total picture of early acute carbon tetrachloride poisoning may simulate that from alcoholic intoxication. Since carbon tetrachloride enters the body through inhalation or through the skin and almost entirely leaves through exhalations as such, the odor of the breath is of some significance

in detecting the presence of carbon tetrachloride. More accurately quantitative determinations of alcohol might have been made at the time of the "abnormal" state through appropriate examination of the blood, urine or exhaled air. The late effects of carbon tetrachloride action are ordinarily dissimilar to those of the action of alcohol, so that difficulty should not arise in differential diagnosis. After some or all of the manifestations earlier mentioned there may appear diarrhea, bloody stools and other evidences of gastroenteritis; jaundice, bile in urine and other evidences of hepatic damage; symptoms of acute nephritis and, all considered, the general picture of guanidine poisoning.

Additional information may be found in the following citations, which are representative of a large bibliography:

Smyth, H. F.; Smyth, H. F., Jr., and Carpenter, C. P.: The Chronic Toxicity of Carbon Tetrachloride: Animal Exposures and Field Studies, *J. Indust. Hyg. & Toxicol.* 18:277 (May) 1936.

Lehnher, E. R.: Acute Carbon Tetrachloride Poisoning, *Arch. Int. Med.* 56:98 (July) 1935.

Davis, P. A.: Carbon Tetrachloride as an Industrial Hazard, *THE JOURNAL*, Sept. 29, 1934, p. 962.

McGuire, L. W.: Carbon Tetrachloride Poisoning, *ibid.*, Sept. 17, 1932, p. 988.

DERMATITIS FROM POLLEN OR LIGHT SENSITIVITY

To the Editor:—A woman aged 38 is troubled with an intolerable eczema that begins in the spring and lasts for about three or four months. The eruptions have never occurred in the winter and seem to be much worse during the extremely hot weather. This rash started when the patient was 14 years old and she has had it every summer since then. At times there has been a swelling of the hands and eyes. Cutaneous tests were made for practically everything two years ago and all were negative. Different climates have been tried but the patient states that she has noticed little difference in the eruption. The eruption starts in the form of blisters which break and form blisters elsewhere. Then they form scales and dry weeping patches as of a typical eczema. The itching is intolerable and does not seem to be favorably affected by any form of treatment. The sites of predilection for the eruption are the head, face, neck, extensor and flexor surfaces of the forearm and between the fingers. The previous history includes an appendectomy at 22 years of age, tonsillectomy at 24, cholecystectomy at 31 and thyroidectomy at 36. The basal metabolic rate is -12 and there is evidence of slight estrogenic deficiency. Aside from her slight overweight the physical examination is negative. I would appreciate anything that you may have to offer in form of diagnosis and therapy. I have considered a possible allergy to heat or fungous infection.

M.D., Texas.

ANSWER:—The description of this case suggests two possibilities, pollen sensitization and hypersensitiveness to light. With regard to the first of these, the statement that cutaneous tests have been made usually means that many scratch tests have been made without reaction. This, in the case under discussion, is not enough to rule out the possibility that sensitization to the suspected substances is present. Intracutaneous and inhalation tests and patch tests with the oleoresins of the indigenous and cultivated plants are necessary before such a conclusion can be reached. The fact that the eruption is much worse during hot weather may mean that there is an additional sensitization to light or heat or only that perspiration adds irritation to that already present. Persistence of the eruption after the season of pollination or after removal to another region with a different flora may mean only the hangover so often noted in sensitization cases. The real test would be to move to another region in the spring before the eruption appears and see whether in that way the dermatitis can be avoided.

Light sensitization may manifest itself on the skin as eczema solare or as hydroa aestivale or vacciniforme. The statement that the eruption resembles eczema and itches intensely favors the first of these; but the differentiation should be made by a dermatologist. Hydroa in girls is said to tend to begin later, about puberty, to continue longer in each attack, to itch more and to persist, while the vacciniform type in boys often clears up in early adult life. Light sensitization can be tested for by exposure of small areas of skin to sunlight or artificial ultraviolet light. The fact must be kept in mind that in some of these cases, as mentioned by W. H. Goeckerman, A. E. Osterberg and Charles Sheard (Eczema Solare in a Case of Hematoporphyria, *Arch. Dermat. & Syph.* 20:501 [Oct.] 1929), only certain parts of the skin show the special sensitivity, reacting with an eczematoid eruption, while the rest of the skin reacts under a much larger dose with the usual erythema. Hydroa, whether of the estival or the scarring vacciniform type, occurs in attacks lasting usually a few weeks; but these may occur so frequently that the series seems like one long attack. Between these attacks the skin may react normally to light. There are cases reported in which other forms of irritation, trauma, cold or heat were necessary in addition to light before a reaction could be elicited.

Both eczema solare and hydroa are at times accompanied by an excess of porphyrin in the urine. F. E. Senechal and H. W.

Fink found that this was true in 17 per cent of the cases reviewed by them and suspected that a more careful study would have revealed it in a larger proportion (*Hydroa Vacciniforme seu Aestivale, Arch. Dermat. & Syph.* 7:145 [Jan.] 1923). Formerly considered of possible etiologic significance because artificially produced porphyrins injected into animals intravenously cause hypersensitivity to light, the tendency now is to consider the porphyrin excess a product of the exposure to light, possibly produced in the cells of the skin. Goeckerman and O'Leary found two and a half times as much porphyrin in the urine of one of their subjects after a general ultraviolet exposure. W. J. Turner and M. E. Obermayer (Studies on Porphyrin: II. *Arch. Dermat. & Syph.* 37:549 [April] 1938) believe that porphyria is due to a prenatal error of metabolism of the pyrroles and not to a disturbance of liver metabolism as advocated some years ago. Liver therapy has been tried without any consistent results and in their case seemed to have a bad effect, while a diet containing a large amount of citrus fruit seemed to be helpful. Desensitization has not been successful in cases of porphyria, though it has been tried with copper and zinc and with calcium. The same is true of attempts to reduce the sensitivity to light. The only practical method of treatment is protection from light. This is best done by large hats, veils and gloves and by the use of opaque ointments such as zinc paste. Made with the cuticolor powder advocated by Bernard Fantus and H. A. Dynewicz (Cuticolor Preparations, *J. Am. Pharm. A.* 27:878 [Oct.] 1938) it can be made inconspicuous.

This patient should be thoroughly studied, and if the diagnosis is light sensitization a careful search for porphyria should be made. In connection with this, Turner and Obermayer suggest a study of the function of the bone marrow because there is a "remarkable similarity to that in pernicious anemia."

GASTRIC DISTURBANCES WITH EVENTRATION OF DIAPHRAGM

To the Editor:—Following an attack of trichinosis, a man aged 43 started to complain of gas in his stomach, which was eliminated only by lying on his left side and putting his finger down his throat, causing him to gag. Fluoroscopic survey of the chest showed elevation of the left leaf of the diaphragm, which produced an obliteration of the costophrenic angle and a displacement of the heart and mediastinum toward the right side. The left leaf of the diaphragm moved only slightly with deep expiration and inspiration. Barium sulfate passed slowly into the stomach and the emptying time was normal, but the cardiac portion of the stomach was elevated and rotated so that a trap was produced. The splenic flexure was displaced upward along the side of the stomach, being at the level of the fourth rib anteriorly. The advancing column of barium had reached this point at the end of four hours. This was the status of the patient in 1937 and it has remained the same. His only complaint is that he cannot eat away from home because he has to lie down and gag to relieve himself, and during the past year he has had to do this several times a day between meals. Assuming that this is an eventration of the diaphragm due to trichinosis, is there anything one could do to control the formation of gas in the stomach? Examination of the gallbladder after oral administration of dye showed a normal functioning gallbladder.

M.D., Ohio.

ANSWER.—Gastric disturbances associated with eventration of the diaphragm are attributable to visceral displacement and dysfunction. Under such circumstances the outlook for relief or cure is not a bright one, as surgical intervention is contraindicated and medical and dietetic measures usually are not effective. As eventration is frequently confused with diaphragmatic hernia, it is essential to exclude the latter, as it lends itself to operative treatment with successful issue in a majority of cases. Granting the undeniable presence of eventration, it does not necessarily follow that trichinosis was the causative factor, although it could have been the precipitating one. In the absence of injury to the phrenic nerve on the affected side, most authorities consider the condition a congenital or developmental defect. The onset of symptoms may be delayed in cases of eventration proved to be congenital by pathologic study.

If the following measures have not already been employed, one could suggest a diet of a bland, moderately low residue, high vitamin nature. Carninatives, such as compound mixture of rhubarb (N. F.) with or without tincture of belladonna, in appropriate doses, might prove helpful. Any tendency to aerophagia, constipation and obesity should be avoided.

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ACUTE LARYNGOTRACHEITIS

To the Editor:—A girl aged 5 years became suddenly ill with a sore throat and mild laryngitis. Immediate examination revealed a reddened pharynx (no membrane). The temperature was 102 F. She was given 2 grains (0.13 Gm.) of acetylsalicylic acid and put to bed. Six hours later she had severe tracheitis and was subsequently removed to a hospital. She was then started on sulfanilamide 5 grains (0.32 Gm.) every four hours for three days. However, she vomited each dose. Eighteen hours later there was so much edema that a tracheotomy was necessary. Twenty-four hours after this tracheotomy she was given 30 grains (2 Gm.) of sulfanilamide over a four hour period subcutaneously. Forty-eight hours later she was given 30 grains of sulfanilamide over a ten hour period subcutaneously. On the third day she was treated the same way. (The dosage was 30 grains each time subcutaneously.) No cultures for diphtheria were taken because no membrane was present. 1. If sulfanilamide was given twenty-four hours before the tracheotomy was performed by some route other than by mouth would it have lessened the chances for a tracheotomy? 2. Should one start the patient on sulfanilamide immediately after the surgical operation or wait twenty-four hours? 3. Can diphtheria occur in the larynx without producing a membrane? 4. Would diphtheria antitoxin have harmed the child if given post-operatively? 5. Do you believe that sulfanilamide should be given in one large dose or in repeated doses i.e., every four hours straight? 6. How long would you have left this patient on sulfanilamide? She did not receive any more drug seventy-two hours after the tracheotomy, even though her temperature was 100.6 F. and the tracheal cannula was still in place. The white count on the fourth day was 14,000.

M.D., Indiana.

ANSWER.—1. Probably not.

2. There would seem to be no advantage in waiting.

3. Such an occurrence is not at all likely.

4. Not unless the child was especially sensitive to horse serum.

5. After a large initial dose, it is preferable to give sulfanilamide in repeated doses, usually at intervals of about four hours.

6. The duration of sulfanilamide treatment should depend on the concentration of the drug in the blood and on the clinical condition of the patient.

From the facts cited, one might believe that the patient suffered from a laryngotracheitis of streptococcal origin with edema about the glottis rather than from laryngeal diphtheria.

THE MODERATOR NERVES

To the Editor:—In the editorial in *The Journal*, Nov. 2, 1940, "Experimental Hypertension" occurs the term "moderator nerves." Further on, mention is made of the carotid sinus and aortic depressor nerve mechanisms. Are these terms synonymous or are there other moderator nerves? In the literature are records of extirpation of the carotid gland for epilepsy. Anatomically the gland has abundant sympathetic nerve fibers. Are these connected with the sinus nerve mechanism and are the epileptic prone to high blood pressure? What is the present status of the moderator nerve mechanisms in relation to essential hypertension and their modification of renal hypertension?

Thomas I. O'Drain, M.D., Philadelphia.

ANSWER.—The term "moderator nerves" refers to the aortic and carotid sinus nerves. For instance, Heymans and Bouckaert (*Proc. Soc. Exper. Biol. & Med.* 39:94, 1938) say "In a series of dogs, the four moderator nerves (two aortic and two carotid sinus nerves) were cut."

It would seem that the nerve fibers of the carotid gland referred to in the inquiry may well assume a role in the sinus nerve mechanism. Apparently the epileptic are not especially prone to high blood pressure.

The following excerpt from Blalock's review (*Physiol. Rev.* 20:163, 1940) may be cited in answer to the question regarding the present status of the moderator nerve mechanisms: "The question arises as to whether this type of experimental hypertension induced by removal of the moderator nerves is related in any manner to hypertension as observed in patients. If there is a relationship, it is with essential hypertension rather than the nephropathic variety. It is known that intense vasoconstriction is present in essential hypertension and in experimental hypertension due to removal of the moderator nerves. However, it does not follow necessarily that essential hypertension is due to an abnormality of the carotid sinus or aortic depressor nerve mechanisms. . . . The similarity in the end result rather than the cause."

VAGINAL EXAMINATIONS IN PREGNANCY

To the Editor:—Referring to "Rectal versus Vaginal Examination" in *Queries and Minor Notes* (*The Journal*, January 11, p. 177), I feel that the comment lacks the necessary forcefulness to encourage this young man to stand on his training. May I point out that too frequently medical students are taught the rules of safe obstetric conduct in grade A schools to be ridiculed and disillusioned in private practice. If we are to maintain high standards of obstetric practice we must demand compliance with accepted teachings. Hospitals that countenance procedures as reported should be thoroughly censured.

George C. Finola, M.D., Chicago.

